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THE MODERN TREATMENT OF BURNS.

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BEFORE I commence the subject of this paper, it is desirable to recall briefly the classification of burns and their local and general effects. Dupuytren's classification still holds, and it involves a description of the local effects of the various grades of burn. First degree burns are a result of scorching—the familiar sunburn of the early summer is a classical example; the skin remains red and painful for a time. In second degree burns, the cuticle is raised from the cutis and vesicles form. When these burst, the cutis vera, red and inflamed, is seen; permanent discoloration of the skin may follow. The cuticle and also part of the cutis vera are destroyed in third degree burns, and the interpapillary processes and sensitive nerve terminals are exposed; this causes considerable pain. This type of burn is sustained commonly in wartime as the result of bomb and shell explosions, and in aircraft accidents from bursting petrol tanks. Healing occurs, both from the skin edge and from the sweat glands, hair follicles and interpapillary downgrowths. The resulting scar is white and supple, with no tendency to scar tissue formation or contracture. In fourth degree burns, the whole skin is destroyed and sometimes some of the subcutaneous tissue. Fifth degree burns involve muscle, and in sixth degree burns the whole structure of the limb is charred. Burns of the fourth to sixth degrees can heal only after sloughs have separated; they lead to scar tissue formation, with subsequent contracture and deformity.

General Effects of Burns.

The general effects of burns are primary and secondary shock, with toxic effects and infective sequelae. When many terminal nerve endings are exposed and irritated, this condition results in primary or neurogenic shock, which will vary in intensity with the surface area burned.

Secondary shock occurs after a few hours, and is due to fluid imbalance and to the effects of toxic absorption from the burnt surface. Infective sequelae result from infection of the burnt area or from bronchopneumonia in some severe cases. Infection is to be avoided as much as possible in these cases, as it results in destruction of young skin islets, and scarring and delay in healing are increased.

The Modern Treatment of Burns.

The modern treatment of burns may be subdivided as (i) first aid treatment for patients a short distance from hospital or a treatment centre; (ii) first aid treatment for patients who must be transported a considerable distance before hospital care is available; (iii) hospital treatment, both for the local condition and by means of resuscitation measures when these are indicated.

In the first case, sterile dressings of sodium bicarbonate solution (one fluid drachm to one pint) should be adequate for burns to any area, although greasy dressings to the face and flexures are an advantage. The applications once made should be kept moist during transport of the patient and at the hospital while he is awaiting further treatment. This can be accomplished by repeated saturation with bicarbonate solution from a bowl and sponge.

Fluids, such as hot tea or coffee, should be given freely, and morphine sulphate (a quarter to half a grain) when indicated. Early full doses of morphine sulphate have much to recommend them in the prevention of shock.

When a distance must be traversed, then some form of tan must be applied. Tannic acid jelly (5%), tannic acid

*Read at a meeting of the Western Australian Branch of the British Medical Association on July 15, 1942.

spray (2.5% to 5%) and triple dye (brilliant green 1%, gentian violet 1%, acriflavine 0.1%) are all equally efficacious. Tanning is not recommended for the face, the flexures or the fingers or toes in third degree burns. For these parts, greasy dressings, such as "Vaseline", "Vitin", or *tulle gras* and moist saline packs are preferable.

The present method of tanning does not involve extensive *débridement* or any severe scrubbing of the burnt surface. Blisters are snipped away, and the area is cleansed with ether or spirit. Any *débris* is removed by sterile forceps. Sulphanilamide powder is then puffed on to the part and the area is sprayed under a radiant heat cradle at intervals of five to ten minutes until a good coagulum is formed.

The advantages and disadvantages of the tan were once considerably debated; but experience in England early in the war demonstrated the bad results arising from tanning of the face, hands and flexures. Gangrene of the tips of the fingers from constriction of the blood supply was not uncommon, and much disability in finger stiffness is attributed to it still. Under the tan infection often takes place, and many newly growing islands of epithelium are destroyed, so that scarring is increased. General toxic effects arising from this cause are often severe and may cause death. There is no doubt, therefore, that tanning is a treatment which has its limitations. Nevertheless, it limits fluid loss and fixes part of the burnt tissues, thus helping to prevent secondary shock, and it renders transport of these patients much more easily possible. In many cases of first and second degree burns, on the patient's arrival at hospital the tan can be safely left until it peels off. In other cases, it must be removed as soon as proper hospital facilities are at hand.

During the patient's transport to hospital, it is probable that a depot dose of four grammes of sulphanilamide per day would help to prevent infective complications.

Treatment when the patient reaches hospital varies with the severity and extent of the burns. In some cases, local treatment is all that is necessary; in others, resuscitation methods must also be employed to remedy general effects. The local methods used are those recommended by Lieutenant-Colonel F. Clark in a letter to Brigadier D. M. McWhae; they were practised successfully by Major B. K. Rank in the Middle East and recorded by him in an article in *The Australian and New Zealand Journal of Surgery*. The methods, in brief, consist of removal of the tan, if present, and the use of the saline bath, sulphanilamide powder and the *tulle gras* technique.

For our resuscitation facilities, we have very largely to thank Major Cyril Fortune for his excellent work in the local manufacture of serum, and Captain F. McD. Richardson, of the United States Army, who brought here valuable practical experience in haematocrit and plasma protein estimations. As a result of their efforts, we now feel that we can give serum intelligently and when it is most needed, and in proper quantity without waste.

With the local effects of burns I have already dealt. Let us now consider the general physio-pathology of severe burns. In such cases there occur simultaneously a decrease in the fluid concentration of the blood (that is, a haemo-concentration) and an increase in the fluid content of the tissues, this fluid closely approximating to blood plasma. This occurs by an exudation of plasma protein through the capillaries, with consequent loss of this fluid in the circulating blood. This abnormal distribution of fluid occurs shortly after a severe burn has been sustained. Relatively little fluid is lost externally, and this loss is further limited if tanning is employed.

Therefore, for effective treatment, the fluid lost from the circulation should be replaced by restoration of the lost plasma protein; this would again procure a normal osmotic pressure between the vessels and the tissues. It is not necessary to give much extra fluid, as no severe external loss takes place; in fact, it is possible to waterlog the tissues by the intravenous administration of saline solution. To reestablish a normal osmotic pressure various agents have been employed. Gum acacia was once popular, but serum now holds pride of place; its osmotic equivalent is twice that of whole blood (a pint of blood is about one-

half serum and one-half cells), and it contains no unwanted cells. The system cannot hold plasma in circulation for a period varying from one to two days after the burn is sustained; after that it is able to do so.

Let us turn to the practical application of these considerations. When a patient with a severe burn is admitted to hospital, haematocrit readings and plasma protein estimations are carried out and adequate serum is administered, the amount being controlled by repeated haematocrit readings. Captain Richardson will give further information on these tests later in the evening. In addition, according to the indications, warmth is applied, warm fluids are given by mouth and morphine sulphate is administered in adequate dosage.

An assessment is made of the local condition of the burns, their degree and extent; if they are tanned, the presence of any concomitant injuries is also noted. The patients with the most serious burns are placed in saline baths at once, whether a tanning agent has been applied or not. Patients with burns of less extent are dealt with in smaller baths or special ones for the arms or legs. If no baths are available, saline packs are used.

We have had a number of severe cases during the past twelve months, and a description of one of them will, I think, serve to bring out the main points in the use of this technique.

The patient was a victim of the first raid on Darwin. He had suffered first, second and third degree burns of the face, arms, chest, back and both legs. He had been tanned with tannic acid spray at Darwin and transported to us. He arrived seven days later, semiconscious, with a temperature of 104° F., bronchopneumonia and infection beneath his tan. Despite his bronchopneumonia, he was placed immediately in a bath of 1% saline solution at a temperature of from 90° to 95° F. He seemed comfortable in the bath, in which he remained for about an hour and a half. During this time as much of the tan as would come off without force was removed.

He was taken from the bath, the unburnt parts were dried, and the burnt areas were puffed with sulphanilamide powder; *tulle gras* one layer thick was applied, with cotton wool moistened with saline solution over it, and he was returned to bed. He slept, passing the most comfortable night he had had since his burning. The next morning toxemia was much less evident. He remained in the bath about two hours next day, more of the tan being removed. The administration of "M & B 693", two tablets every four hours, was commenced as treatment for his bronchopneumonia. The next day 2% saline solution was used; this he tolerated well, and the remainder of the tan was removed.

There still remained considerable areas of sloughy deposit; in the course of the next few days these disappeared, leaving granulating surfaces with many small islets of epithelium showing. The bronchopneumonia had cleared up by the fifth day, and the patient was comfortable, eating and sleeping well. At this stage it seemed as if considerable areas would require skin grafting and his fingers would be permanently stiff. After a further week of active movements in the bath, the picture was quite changed; the finger movements were rapidly returning, and it seemed as if hardly any skin grafting would be necessary. This grafting was now carried out according to the method outlined by Rank in his article. All grafts were taken down on the fifth day and the saline baths were resumed. The grafts took well, and the man was able to walk about with all areas completely healed five weeks after his admission to hospital. All movements were maintained and epithelialized areas were well massaged with lanolin every day. The recently burnt areas remained tender after healing. The patient was transferred to another hospital after the sixth week and lost sight of.

We have treated other patients with severe burns with saline baths from the start and have not observed the toxic phase on the fourth day to nearly the same extent as in cases in which a tanning agent has been used.

In less severe cases the individual limb is similarly treated in a bath. We had arm and leg baths made as suggested by Lieutenant-Colonel Clark—for arms one foot deep by two feet square, and for legs eighteen inches in diameter. We found that burnt legs were not comfortable hanging down, and that horizontal baths were much more suitable.

A newly arrived burnt patient is placed in a bath, blisters are snipped and *débris* is floated off. After an hour or

more, sulphanilamide powder is puffed on and *tulle gras* and moist saline packs are applied. This process is repeated once or twice a day, according to circumstances. Sulphanilamide (one gramme every four hours) is given for three days in severe cases. A basin of saline solution and a sponge are placed by the patient's bedside, so that he or a nurse can moisten the dressings frequently in less severe cases.

With the bath treatment, difficulty may be experienced in transferring the patient into the bath. We accomplished this by lifting the patient on a sheet, which we left in the bath and used for lifting him out again. He was floated on "Sorbo" rubber matting and air cushions (patients preferred the former), and a block was placed at the end of the bath, against which he rested his feet.

For a bath, we were fortunate in having at our disposal a large hydrotherapy bath, in which the arms could be abducted and the patient could float, completely immersed and extended. This was and is used in all severe cases, the ordinary bath being reserved for patients who are recovering and for those with less severe burns. Saline solution in 1% strength (one pound of salt to ten gallons of water) was used at first, and was rapidly changed to 2% strength, since the skin does not become soggy in the latter.

The bath is swabbed out with "Lysol" between patients. When the bath has been completed (the patient will usually say when he has had enough), the patient is lifted out on the wet sheet and placed in his bed on a waterproof cover and the rest of the treatment is completed; the wet sheet and waterproof cover are removed when the patient is turned. We did not paint the skin edges with mercuriochrome, and noticed no ill effects from not doing so. We paid particular attention to fingers which were at all stiff; flexion and extension were carried out from the start, even if this meant the cracking of the newly growing epithelium at the joints. This work was carried out by the masseuses most assiduously, and it paid good dividends; both active and passive movements were used, and we have had no residual stiffness of the fingers in any of our cases so far.

The temperature of the bath makes a great deal of difference to the length of time for which the patient can tolerate it. The temperature should be kept at from 90° to 95° F. When additional hot water is added, additional salt should accompany it.

One patient I remember was intolerant to a 1% saline bath, but was immediately comfortable when 2% saline solution was substituted. The patient's comfort is also increased if all dressings are kept moist; this is absolutely essential in burns of the face. We did not add moisture through the dressings in burns of other areas in severe cases. Dressings must not be pulled off; they must be allowed to float off, which they do without pain or damage to the epithelium. *Tulle gras* should be applied only one layer thick, and should not be too greasy.

We used various curtain materials of varying meshes, from mosquito netting to curtain net of a mesh five or six to the inch. It is made by impregnating the material in "Vaseline" containing 2% balsam of Peru (*Tinctura Benzoini Composita* may be used as a substitute); it is then cut in pieces about six inches square and placed in a tin with a lid. These tins are autoclaved for twenty minutes at 250° C., the lids are removed and surplus greasy material is poured off, and the lid is reapplied. *Tulle gras* which has been used once can be used again if necessary. It can be boiled, reimpregnated and sterilized, and it is quite satisfactory in our experience.

We used crushed tablets of sulphanilamide in a puffer made from a Higginson's syringe and some copper tubing in a bottle. The wounds were puffed till a fine hoar frost of powder had formed. When the burnt areas are cleaning up cultures are made from them, so that skin grafting may be undertaken at the earliest moment under the most favourable conditions.

The organisms we have encountered include *Streptococcus hemolyticus*, *Staphylococcus aureus hemolyticus*, *Bacillus coli* and *Bacillus pyocyaneus*.

Skin Grafting.

Our routine method when skin grafting is to be attempted is to dress the part with normal saline solution only for one day and then take a smear for culture. If streptococci are found, treatment with sulphanilamide powder is continued for three days and then saline solution only is applied for a further day, when a further culture is made. When a "negative" report is received, skin grafting may be safely undertaken.

For staphylococcal and *Bacillus coli* infections we use eusol compresses, which sterilize the wound rapidly. It has not been safe in my experience entirely to ignore the presence of staphylococci, especially hemolytic staphylococci, as they were responsible for the failure of two grafts, though not after burns.

For *Bacillus pyocyaneus*, a 1% aqueous solution of acetic acid is most effective. When the culture report is satisfactory, we have carried out Thiersch and pinch grafts, using Rank's technique; sulphanilamide powder is used, the graft is spread on *tulle gras* and sewn in position with silkworm gut, one end being left long, and cotton wool soaked in paraffin and flavine (1/1,000) is tied over it and well moulded to the part. A gauze bandage is applied and secured with "Mastisol", and a crepe bandage is applied over this.

The graft is not disturbed for five days; the dressings are then floated off in a saline bath and the routine treatment is again commenced. Grafting by this method is a satisfactory procedure if certain precautions are observed; these are, that there must be no or very few streptococci, that there should be no overlapping of portions of graft (this favours autolysis), and that the flavine and paraffin pack should be well moulded to the part.

We have had to employ no pedicle or other types of skin graft in any burn cases in which the saline bath method of treatment was used. Indeed, it seems as if the nasty scarred, deformed faces, bodies and limbs of other days will very much diminish in frequency. The application of lanolin, massage and movement must be continued for twelve to fourteen weeks; by this time danger of contracture should be past. Two things, it seems to me, are responsible for the more successful treatment of severe burns; these are sulphanilamide and serum. The former has made possible the successful use of the saline bath and early skin grafting without dangerous infection, and the latter has made it possible to save the lives of many who would otherwise be doomed.

Acknowledgements.

In conclusion, I should like to thank Lieutenant-Colonel A. R. S. Vickers for facilitating in every way possible the undertaking of this form of treatment, and Major J. P. Ainslie and Captain Lane for valuable help and advice, and last but not least, Major R. D. McKellar Hall, who patiently endured many inconveniences when his massage department was taken over for burn patients.

THE MODERN TREATMENT OF BURNS.¹

By F. McD. RICHARDSON,
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SYSTEMIC changes seen following severe burns are a special problem in surgical physiology. Some of them are similar to those found in traumatic shock, and many and varied have been the theories postulated in explanation.

H. P. Pickerill,² in *The New Zealand Medical Journal* for April, 1942, ascribes burn shock "to the arrival at the sensory nervous system of an overpowering number of acute sensory stimuli from the burned nerve endings", and recommends treatment largely based on this premise. He

¹ Read at a meeting of the Western Australian Branch of the British Medical Association on July 15, 1942.

considers local anaesthesia and massive local infiltration anaesthesia as described by Crile and Vishnevsky to be the best treatment and discusses the refrigeration treatment of T. M. Allen. He makes no mention of the influence of anhydremia, whose importance has been appreciated largely since the work of Underhill and his co-workers;⁽⁷⁾ they, in 1930, demonstrated the shift of tremendous volumes of fluid of high protein content into the vicinity of burnt areas. They also demonstrated abnormal permeability of local capillaries to dyes, in an effort to explain the mechanism of the shift of fluid and protein elements from the intravascular to the extravascular compartments of the body and the consequent loss of intravascular volume.

These studies were amply confirmed and elaborated both experimentally and clinically and in the next ten years by many investigations. Blalock^(8,9) showed that 57% of the total plasma volume was accumulated in the oedema surrounding burnt areas, and that the protein concentration of this fluid closely approximated that of plasma. Harkins⁽¹⁰⁾ showed reduction of "bleeding volume" and confirmed the presence of the fluid and protein shift. Schievers,⁽¹¹⁾ Lambret and Driessens,⁽¹²⁾ and Keeley⁽¹³⁾ with his co-workers all proved the volume of circulating plasma to be reduced in quantities varying from 20% to 80% of normal.

The theory of a specific burn toxin waxed and waned and waxed again, following reports by Wilson and his co-workers in *The British Journal of Surgery* of 1937 and 1938. In the first of these reports⁽¹⁴⁾ Wilson reviewed the significant findings in 65 carefully analysed cases. In the second⁽¹⁵⁾ he produced experimental evidence in favour of a burn toxin and correlated the experimental results with the clinical findings. Wilson, and further, Elkinton⁽¹⁶⁾ in a small series, found a period of toxic symptoms—fever, albuminuria, mental apathy, disorientation, vomiting, cyanosis, tachycardia and thready pulse—which could be definitely distinguished from the early periods of shock associated with haemoconcentration and hypoproteinaemia.

Damage to the adrenal cortex has been suggested by some writers to be the primary cause of burn shock. Pathological evidence in favour of this theory is weak; but strength of clinical evidence is attested by Scudder,⁽¹⁷⁾ Wilson,⁽¹⁸⁾ and Elkinton⁽¹⁹⁾ and others, who have treated burnt patients with large doses of adrenal cortical extract, in many cases observing almost miraculous recoveries.

Our primary interest at this meeting is to discuss the diagnosis and control of the fluid imbalance arising in the first few hours after a burn.

The experimental and clinical observations cited above have contributed sufficient evidence to establish the following facts:

1. Increased capillary permeability in and surrounding the area of a burn permits the loss of plasma protein across a membrane usually impermeable to it, and results in disturbances of normal relationship of the intravascular and extravascular compartments.
2. Capillary stasis follows, tissue fluids are increased, plasma volume is diminished, and haemoconcentration develops.
3. The end results of these manœuvres are an abnormal distribution of plasma water and plasma protein within the tissues and the eventual development of anhydremic shock due to their loss from the intravascular compartment.

Consideration of the above statements leads inevitably to the following conclusion—namely, that the primary derangement of physiology seen following burns is loss of plasma from the blood stream, with consequent alteration of the osmotic and fluid balance of the body. Obviously the best treatment is replacement of the lost elements. The addition of electrolytes in solution further decreases the effective osmotic pressure in the capillaries, and they will often filter out to increase the already existent oedema. The addition of whole blood, while contributing some plasma, inevitably adds quantities of red blood corpuscles to an already overburdened circulation.

The questions now arising are, when to replace plasma and how much to replace. They are best answered in the

laboratory by the following tests, which, while seemingly intricate and involved, are really simplicity's self.

The first of these tests, the haematocrit reading, is performed by centrifuging a specimen of venous blood until the cells attain constant volume. At the 110th Australian General Hospital we found that thirty minutes at 3,000 revolutions per minute sufficed. The specimen should be collected through a dry needle and syringe, and we used one milligramme of heparin as an anticoagulant. The resulting values, expressed in percentage of cells in total specimens, average 46% cells in normal men and 41% cells in normal women.

The second test, the determination of plasma specific gravity, utilizes a principle based on Stokes's law, which takes advantage of the fact that the falling time of a drop of known volume through an immiscible fluid for a fixed distance is governed by the density of the drop and by other factors which are controllable. The test itself is performed by dropping 0.01 millilitre of the plasma over a distance of 30 centimetres through a mixture of xylene and brom-benzene and timing the fall with a stop-watch. The falling time of the unknown is compared with the falling time of a standard solution of known specific gravity, and from the comparison the specific gravity of the unknown is determined. This procedure can be carried out in less than five minutes even by the inexperienced operator, and is accurate enough to reproduce specific gravity results to the fourth decimal place.

From a formula derived by Weech, Reeves and Goettsch in 1936, and checked by pycnometry and micro-Kjeldahl nitrogen determinations, the plasma protein content may be calculated. I have never used this formula, since tables of comparative values are already available and are so much less liable to error than are my calculations.

Now for the interpretation and assay of laboratory results. Several typical patterns are reproducible, but it is essential for the physician to examine the results with a critical eye.

First, a high or rising haematocrit value is evidence of present or approaching haemoconcentration and is an indication for the administration of fluid. A low or falling haematocrit value means blood loss and is an indication for replacement therapy.

Secondly, the type of fluid is determined by consideration of the immediate past history of the patient and the observed plasma protein figures. Falling protein values indicate the need for administration of protein, rising protein values, the need for water *et cetera*. From previous clinical experience, as well as from further indicated laboratory tests, the chemical composition of the water is determined. Following haemorrhage, the administration of blood is obviously the best replacement therapy; but the immediate use of pooled serum during the period inevitably encountered in the procuring and preparation of safe blood has, in our hands, and in those of others, proved a life-saving measure.

As a specific example, it may be pointed out that the patient suffering from burns may be expected to show rising haematocrit values accompanied by falling plasma protein values. This state of affairs may be interpreted as haemoconcentration with plasma loss, and is best treated by administration of quantities of serum or plasma.

Plasma loss in burns, if untreated, may be expected to continue for from thirty to forty hours;⁽²⁰⁾ it is during this period that plasma therapy is essential. Various formulae and quantitative methods of administration of plasma have been suggested by previous authors;^(20,21) but it has been my experience that plasma administration should be commenced immediately and maintained vigorously as long as the tests described above reveal a continuation of plasma protein loss.

There has been a great deal of discussion and dissension in surgical ranks about the quantities to be administered. Unfortunately our early ideas were subtly affected by the fact that plasma and serum were blood derivatives, and within the memory span of all of us blood was administered in units of the pint; it was a rash man, treating a moribund patient, who administered more than two con-

secutive pints of blood. Let me assure you from my own experience and from that of others that pooled plasma and serum may be administered faster, in greater quantities, and with less fear of reaction than any other fluid for intravenous administration. Remember that we must with our treatment first decelerate and then reverse the process of plasma protein loss; and the fearful administrator, replacing in drops what is needed in litres, may just as well sit at home before his fire in mental peace and bodily comfort.

Complications of the laboratory picture result with clinical complications; for instance, a patient who is both wounded and burnt is suffering from physiological changes which may be expected to counterbalance each other in certain respects, and he is likely to show normal hæmatocrit values with swiftly falling protein values—a picture of relative hæmoconcentration. Obviously he will need protein, and his other needs may be checked by repeated determinations of hæmatocrit and plasma protein values.

For patients suffering from severe burns, from wounds, from hemorrhage or from obvious shock, these determinations may be repeated as often as every hour; but this is rarely if ever necessary. I have found determinations every four hours satisfactory in the early stages, and as the patient grows quiet, determinations twice a day and later once a day suffice.

Summary.

1. Physiological changes after severe burns have been described and a working hypothesis to account for them has been suggested as: (a) primary or neurogenic shock, (b) water and protein loss secondary to burns, (c) burn toxin effect.

2. Emphasis has been laid on the recognition and treatment of the hitherto neglected second phase of this problem—that is, the problem of water and protein loss, and replacement.

3. Two simple and speedy laboratory methods have been described which are important in the latter connexion, and an effort has been made to illustrate expected trends in patients and the use of these methods in guiding therapy.

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THE MODERN TREATMENT OF BURNS.¹

By J. P. AINSLIE.

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THE majority of the medical profession are inclined to regard burns as uninteresting but troublesome conditions, which happen at awkward moments and interfere with one's routine. While this attitude exists many burns will continue to be inadequately treated, patients who should not die will die, and suffering which could be prevented will occur.

Interest is stimulated when cases occur in large numbers; machines of modern warfare provide the stimulus, the enthusiast is given the material and progress occurs. Major A. Daly Smith has acknowledged his indebtedness to Lieutenant-Colonel F. Clark and Lieutenant-Colonel B. K. Rank; the communications to which he referred provided the stimulus, the Japanese provided the material and the physical therapy department at the 110th Australian General Hospital provided the facilities for him to practise his knowledge. The result has been his enthusiastic development of a technique initiated in the Western Desert and adopted in our hospitals overseas. I can assure you of the results, which were an ample reward for a considerable amount of hard work. I trust that Major Daly Smith's paper read this evening will result in a greater percentage of patients receiving adequate treatment than in the past.

When a patient is extensively burnt, one is faced with two immediate problems: that of saving the patient's life and that of preventing infection. Life is saved by the prevention and treatment of shock, and this treatment should be along standardized lines—the administration of morphine in large doses, the application of warmth, the giving of hot fluids by mouth and of oxygen in adequate amounts, and the administration of serum to restore fluids and protein. Stimulants such as "Veritol" and "Neosynphrin" may be given. Shock may be further prevented by the extensive infiltration of the burned areas with dilute solutions of local anæsthetic agents, preferably a mixture of "Procaine" (1/400) and "Percaine" (1/4,000) in equal amounts. Fixation of the burned area by tanning is also a factor in the prevention of secondary shock, and in extensive second and third degree burns this is a method which must not be abandoned until absorption can be prevented by other means. Tanning, provided it is effectively carried out, also has another great advantage: a patient with burns effectively tanned requires less nursing care than a patient treated by any other method.

A good coagulum is produced by means of triple dye; but brilliant green is unobtainable at present, and I would advocate spraying of the burnt area with 5% tannic acid solution alternating with a 10% solution of silver nitrate. This method produces a more effective tan than tannic acid alone, and the resulting coagulum is also more pliable.

The second factor in successful treatment is the prevention of infection, and stress must be laid on the importance of this; a burn must be regarded as an open wound, which if infected is a danger to the patient, because of the large area from which absorption occurs. Infection must if possible be avoided by the prevention of interference by irresponsible persons with homely but ineffective remedies, by freedom from contamination after the patient's arrival at hospital, and by extensive and thorough cleansing, which should be just as thorough as that required for a compound fracture. Tanning in the absence of thorough cleansing must lead to failure.

Burns of more than the third degree will become infected under the tan, and every effort should be made to apply skin grafts to such burns at the earliest possible moment, in exactly the same way as one endeavours to apply skin grafts as early as possible to any wound associated with extensive skin loss. Such burns may be covered with skin grafts immediately after the excision of devitalized tissue.

¹ Read at a meeting of the Western Australian Branch of the British Medical Association on July 15, 1942.

Electrical burns are excellently treated by this method. The slough from such burns will take weeks to separate if they are treated otherwise than by immediate excision.

The third factor is the prevention of contractures and deformity. Unless the whole thickness of the skin has been destroyed, scars will not form and deformity will not occur; but if the whole thickness of the skin is destroyed, scars will form and contractures will develop unless skin grafts are applied early to the area. The treatment as outlined by Major Daly Smith is most useful, both in the prevention of deformity and in the preparation of the area for skin grafting.

The last factor in the treatment of burns is the restoration of function to areas in which contractures have occurred. In spite of all that is written, we still see patients crippled by contracture of scar tissue—patients with elbows flexed onto the chest wall, arms abducted at the shoulder joints, elbows flexed to a right angle and knees bent, patients ankylosed in the position they adopted for weeks in a hospital bed. Such patients tax the ingenuity of the surgeon and the patience of the nursing staff; but if they are prepared to undergo treatment, perhaps extending over months and years, they will ultimately become the surgeons' most grateful and satisfactory patients.

In the treatment of such patients all forms of grafts may be used—split skin grafts, pedicle grafts and whole thickness skin grafts. The problem is great; but the results will amply repay many months of exacting work and may be described as triumphs of surgery.

Let me urge each of you to be prepared for the next severe case of burning which may confront you; have a plan of campaign which can be put into instant use, see that your hospital has in stock the requisites for treatment—serum for shock therapy, tannic acid in powder form ready for preparation of the solution, silver nitrate solution, *tulle gras* already prepared, sulphanilamide powder and sprays ready for use.

Once a severely burned patient is under your care, review your treatment from time to time, asking yourself whether everything is being done to heal the burned areas as rapidly as possible, whether skin grafts can be applied, and whether contractures are being prevented. Preparation will be rewarded, and you will not have on your conscience some of the ghastly tragedies we see today.

SOME ASPECTS OF THE PATHOLOGY OF CARCINOMATA OF THE BILIARY TRACT.

By RUFERT A. WILLIS,

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In autopsy work of recent years I have been impressed by certain little recognized aspects of the pathology of primary carcinoma of the main bile ducts. This paper briefly outlines the findings in subjects of this disease examined *post mortem* in the pathology department of the Alfred Hospital during the past five years. For purposes of comparison, brief reference is made also to certain relevant features in the post-mortem findings in cases of carcinoma of the gall-bladder and carcinoma of the pancreas during the same period. Only details of the tumour themselves are given; other post-mortem findings, such as the usual results of duct obstruction and inflammatory complications, are omitted. The cases to be described fall into the following groups: Group A, carcinomata of the gall-bladder (11 cases); Group B, carcinomata of the gall-bladder and bile ducts (3 cases); Group C, carcinomata of the main bile ducts (15 cases); Group D, carcinomata of the pancreas (14 cases).

Group A: Carcinomata of the Gall-Bladder.

In the five-year period autopsies were performed in 11 cases of primary carcinoma involving the gall-bladder

only. In several of these cases the common bile duct or hepatic ducts had been invaded; but this was evidently by direct extension of growth from the gall-bladder. The subjects were nine females and two males, ranging in age from forty-four to seventy-nine years; eight were over sixty years old. Gall-stones were present *post mortem* in the diseased organ in nine cases—single stones in three and multiple stones in six. Of the two remaining subjects, one had had stones removed during a recent exploratory operation and the other had given a history of removal of gall-stones twenty-four years before her death. In two cases the tumours were bulky, extending massively into the liver. In the other cases the tumours were not very large, taking the form of thickening of the wall of the gall-bladder, which in several instances was relatively inconspicuous. This thickening was in most cases widespread or universal in the gall-bladder wall, but in two cases it was restricted to the region of the neck and cystic duct, the fundus being uninvolved. In one case (post-mortem examination 6,953) the gall-bladder contained at least two separate areas of growth, one near the fundus and the other in Hartmann's pouch, against each of which lay a single large stone. Discrete metastases were present in lymph glands in nine cases, in the liver in seven, in the peritoneum in two, in the ovaries in two, and in the lungs and bones each in one case.

Group B: Carcinomata of the Gall-Bladder and Bile Ducts.

Three subjects presented widespread carcinomatous change involving both the gall-bladder and the main ducts, rendering it difficult to specify the site of origin of the growths. These merit brief individual description.

Reports of Cases.

CASE I (post-mortem examination number 5,657).—A woman, aged fifty-six years, presented a thickened gall-bladder embedded in dense adhesions and communicating by an aperture 1.5 centimetres in diameter in the neck of the organ with a loculated collection of pus and gall-stones situated on the under surface of the liver. In addition, the wall of the common bile duct was generally thickened and rigid; there was pronounced stenosis at the ampulla of Vater, through which a small probe could be passed only with difficulty. No metastases were found. Microscopically the tumour was an active, poorly differentiated adenocarcinoma, largely restricted to the thickened walls of both the gall-bladder and the common duct.

CASE II (post-mortem examination number 6,478).—In a woman, aged eighty-four years, the gall-bladder was distended by mucoid, colourless fluid and contained a single pure cholesterol stone 2.5 centimetres in main diameter. The fundus of the gall-bladder on its hepatic aspect presented a papillary carcinoma of uniformly nodular surface, measuring about four centimetres in main extent, but infiltrating the wall around and extending into the liver substance. In other parts of the mucous membrane scattered, discrete, small, projecting nodules of growth were present. The cystic duct and the main hepatic ducts showed extensive tumour infiltration of their walls, with uniform thickening up to four millimetres, and the common bile duct throughout its entire length was replaced by a well-defined cylinder of firm growth, about six millimetres thick, with the lumen a narrow, irregular channel running through it (Figures I and II). Tumour deposits were present in the surrounding lymph glands and also in the left supraclavicular glands. The pancreas was intact. Microscopic examination of both the gall-bladder and duct walls showed the tumour to consist of disorderly, poorly differentiated adenocarcinoma.

CASE III (post-mortem examination number 7,067).—A woman, aged sixty years, had a contracted gall-bladder with a thickened wall, containing two stones. The common bile duct also presented general thickening of its wall down to within a short distance of its termination, and polypoid masses of growth occupied the lumen of its lower part. The main hepatic ducts were also thick-walled and distorted. There was some extension of growth around the ducts into the porta of the liver, the pancreas, and the wall of the duodenum. Metastatic deposits were present in many parts of the peritoneum, in the upper abdominal lymph glands and in the lungs. Microscopic examination revealed columnar-celled adenocarcinoma of the walls of the gall-bladder and of the hepatic and common bile ducts.

Group C: Carcinomata of the Main Bile Ducts.

The 15 tumours of the main extrahepatic bile ducts are summarized in Table I. Three arose in the hepatic ducts, one involved the common duct as well as the hepatic and cystic ducts, and the remaining 11 involved the common bile duct only. In those cases in which long reaches of the duct were affected, the walls usually exhibited general thickening with a variable degree of extension into surrounding tissues. The subjects were eight men and seven women, of ages ranging from twenty-four to eighty-one years; 10 were aged over sixty years. In three cases the gall-bladder contained stones, but in no instance were there any stones in the cancerous ducts. Metastases were distributed as follows: peritoneum, four cases; liver, three cases; lymph glands, three cases; lungs, two cases. Intrahepatic columnar-celled adenocarcinomata of bile duct origin, several examples of which occurred in the period under review, are not included in the present account.

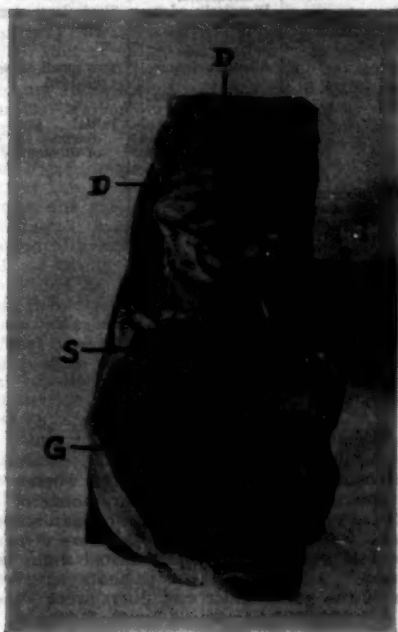


FIGURE I.

Photograph of extensively cancerous gall-bladder, showing nodular projecting growth G, a pure cholesterol stone S, cancerous cystic and common ducts DD, and a mass of growth in an adjacent lymph gland L.

Group D: Carcinomata of the Pancreas.

Of the 14 cases classified as carcinomata of the pancreas, in nine the growths were certainly pancreatic in origin, being situated in the body or tail of the organ in five cases and in the head (but not involving the bile duct) in four cases. In the remaining five cases the bile duct was involved in the growth, so that a pancreatic origin cannot be regarded as certain; indeed, in two of the cases the restricted degree of infiltration of pancreatic tissue around the affected bile duct suggests that this may easily have been the real source of the growths. The subjects were eleven men and three women, of ages ranging from fifty-five to seventy-six years. In none of them were gall-stones present at autopsy. Metastases were found in the liver in eight cases, in the lymph glands in five, in the peritoneum in four, in the bones in three, in the lungs in two, and in the kidney, heart, ovary, brain and thyroid in one case each.

Discussion.***The Frequency of Occurrence of Carcinomata of the Bile Ducts.***

Most accounts of the pathology of the bile tract imply or assert that carcinoma of the ducts is decidedly less frequent than carcinoma of the gall-bladder. Rolleston, in his comprehensive monograph (1905), stated that duct carcinoma was probably not so rare as had been supposed, but gave no comparative figures. Hurst (1941) states that the incidence of carcinoma of the ducts is half that of carcinoma of the gall-bladder. This is not borne out by the present series of tumours, in which those of the gall-bladder numbered 11 and those of the ducts at least 15 (possibly 17, including the two cases classified as pancreatic, but quite probably of ampullary origin). This series suggests that bile duct carcinoma is at least as common as carcinoma of the gall-bladder on the one hand and carcinoma of the pancreas on the other. Perhaps the prevailing impression to the contrary is due to insufficiently careful post-mortem dissection. Unless thorough examination of the ducts is undertaken in all cases of cancerous growths in this region the duct origin of those with considerable surrounding infiltration may easily be overlooked. In reviewing the earlier post-mortem records of this hospital I am struck by the infrequency

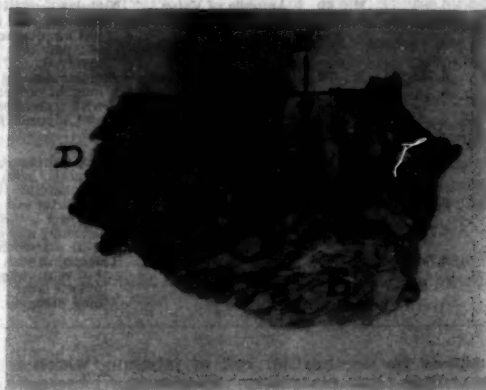


FIGURE II.

Photograph showing complete cancerous replacement of walls of the common bile duct B, as it traverses the head of the pancreas P. D is the duodenal mucosa. (From the same case as Figure I.)

of a diagnosis of "carcinoma of the bile ducts" and, reading between the lines, I strongly suspect that not a few of those recorded as of pancreatic or gall-bladder origin were really of duct origin. In retrospect, I am sure that I have made this mistake more than once myself. The provisional clinical diagnosis in cases of bile duct carcinoma has usually been "gall-stones" or "carcinoma of the gall-bladder" or "carcinoma of the pancreas". Perfunctory post-mortem examination (which is, alas, all too common) is apt to be biased by the suggestions in these provisional diagnoses, and the unwary pathologist may be satisfied with findings which superficially appear to confirm them, without embarking on the trouble of minute examination of the entire duct system.

In this connexion the technique adopted by myself in examining the biliary system may be briefly described. Whenever possible, the liver is removed first, as follows. After division of the falciform and coronary ligaments the index and middle fingers of the left hand are inserted through the foramen of Winslow and the contents of the lesser omentum are palpated between these fingers and the thumb; then, with the two fingers as a guide, the lesser omentum is cut transversely across and the appearances of the duct, vessels and lymph glands on section are noted while this is being done. After the liver has been removed the intestines also are removed from below

TABLE I.
Group C. Carcinomata of the Main Bile Ducts.

Case Number.	Post-mortem Examination Number.	Subject's Sex and Age (Years.)	Primary Site of Growth.	Appearance of Primary Growth.	Metastases.	Histology.	Other Features.
I	6,013	F., 56	Hepatic ducts.	Large gelatinous mass in porta, involving ducts with replacement and thickening of wall.	Peritoneum, lungs.	Mucoid adenocarcinoma.	
II	6,313	M., 53	Left hepatic duct and junction.	Replacement of duct walls by growth, with partial occlusion, and extension to adjacent part of liver.	Peritoneum.	Adenocarcinoma.	
III	6,049	F., 24	Right hepatic duct.	Thickened wall with stenosis for 2-0 centimetres, with some infiltration of portal tissues.	Portal lymph glands.	Mucoid adenocarcinoma.	
IV	6,635	M., 80	Hepatic, cystic and common ducts.	Replacement and thickening of all duct walls, with partial occlusion.	Portal lymph glands, liver.	Adenocarcinoma.	Gall-stones in gall-bladder.
V	5,433	M., 46	Ampulla of Vater.	Tight annular stenosis.		Adenocarcinoma.	
VI	5,656	F., 81	Common duct above ampulla.	Annular stenosis, with slight infiltration of pancreas.		Scirrhous adenocarcinoma.	
VII	5,793	F., 68	Common duct (most of length).	Irregular thickening of duct down to 2-0 centimetres above ampulla with extension into wall of duodenum.	Liver.	Disorderly adenocarcinoma.	Single large stone in gall-bladder.
VIII	5,866	F., 66	Common duct (ampullary region).	Irregular thickening of ampulla, with stenosis in the papilla.		Adenocarcinoma.	Two small stones in gall-bladder.
IX	5,981	M., 79	Cystic and common ducts.	Infiltrated duct walls with stenosis.		Adenocarcinoma.	
X	6,388	M., 69	Ampulla of Vater.	Nodular growth projecting into ampulla and forming a projecting plaque in duodenum at papilla; pancreas not involved.		Papillary columnar-celled adenocarcinoma.	Initial post-mortem diagnosis of "carcinoma of duodenum".
XI	6,541	M., 52	Common duct above ampulla.	Annular stenosis 2-0 centimetres long at upper pyloric level, with extensions to pancreas and adjacent fatty tissue.	Upper abdominal lymph glands, peritoneum, supraclavicular glands, liver, lungs.	Disorderly adenocarcinoma.	
XII	6,504	M., 66	Ampulla of Vater.	Great annular thickening with stenosis, with infiltration of surrounding tissues.		Mucoid adenocarcinoma.	
XIII	6,684	F., 72	Ampulla of Vater.	Irregularity and stenosis of duct in lower 3-0 centimetres.	Peritoneum.	Adenocarcinoma.	
XIV	6,715	M., 66	Common duct above ampulla.	Thickening and occlusion of duct with extension into pancreas.		Adenocarcinoma.	
XV	6,761	F., 66	Common duct above ampulla.	Thickening with annular stenosis 1-0 centimetre long at upper pyloric level; slight extension into pancreas.		Adenocarcinoma.	

upwards as far as the first coil of jejunum, which is cut across; then the mesentery, duodenum, pancreas and stomach are removed in one piece. The lower part of the common bile duct included in this is examined by inserting a probe from its cut end down into the duodenum and opening the duct with a small scissors directed along the probe. The upper part of the common duct attached to the liver is opened similarly from below as far as possible. In many cases of bile tract carcinoma, however, especially with much infiltration in the porta, it is difficult or impossible to follow the ducts by means of a probe and scissors, and it is much more satisfactory to make horizontal serial sections at close parallel planes through the entire portal region, and then to follow the sectioned ducts from slab to slab. This method gives particularly informative pictures in formalin-fixed material, and it is my practice in such cases to preserve a large block of the portal region of the liver along with the ducts and gall-bladder to make thin slab sections after fixation. These enable clear reconstruction of the pathological anatomy of the hepatic, cystic and common ducts and their surroundings, and often show clearly the bile duct origin of growths, the source of which might otherwise be uncertain.

Another point, stressed also by Rolleston, is that small annular stenosing growths may be mistaken for simple cicatricial strictures, unless they are microscopically examined. This applied to two of the cases in the present series; the cancerous nature of the "strictures" was shown only by microscopic study.

Sex Incidence.

Our findings are in accord with those of other workers (see Rolleston and Ewing, 1940); that, while carcinoma

of the gall-bladder is more frequent in women than in men, the reverse is the case with carcinoma of the bile ducts. Thus, of the eleven victims of gall-bladder carcinoma, nine were women and only two were men, while the fifteen bile duct carcinomata affected eight men and seven women. All three of the patients with combined carcinoma of the gall-bladder and ducts were women.

Association with Gall-Stones.

It is generally recognized that, while the cancerous gall-bladder frequently contains gall-stones, these are less commonly present in cases of bile duct carcinoma (according to Ewing, in only 22%). This difference is strikingly exemplified in the present series. Of the eleven gall-bladder tumours, ten were associated with gall-stones, and in the remaining case there was a history of removal of stones many years previously. In none of the fifteen cases of bile duct carcinoma were stones present in the affected ducts, but in three cases the gall-bladder contained stones. In all three cases of combined carcinoma of ducts and bladder gall-stones were present. The stones varied in number, size and position, from large single pure-cholesterol stones to numerous faceted heavily pigmented stones.

Distribution and Extent of Bile Tract Carcinomata.

Some of the primary growths described were restricted to short segments of the biliary tract. Especially was this the case with those involving the lower part of the common duct, where cancers often take the annular stenosing form comparable with the annular carcinomata of the intestine. On the other hand, in Group A, widespread cancerous replacement of the walls of the gall-bladder was much more common than the localized form.

of growth; the three tumours in Group B showed a very wide distribution in the bile ducts and gall-bladder walls; and in Cases IV, VII and IX of Group C widespread cancerous replacement of the bile ducts for considerable distances had occurred. These frequent instances of widespread disease of the walls of the biliary system are comparable with leather-bottle or gizzard carcinoma of the stomach; but the great extent of the involvement in this system in comparison with the small calibre of the affected organs thrusts more prominently before our notice the problem of the mode of origin and spread of the growths. Do these growths arise each in a small local area and spread preferentially and uniformly in the walls of the ducts for long distances, or do the tumours arise from multiple foci or diffusely, either simultaneously or in succession, over wide tracts of the affected bile channels? The pathological anatomy strongly favours the second view. In most cases of widespread cancer of the bile tract the cancerous change has affected the walls so uniformly that it is impossible to point to any particular segment as being the probable initial site of growth. Thus in such a specimen as that depicted in Figures I and II, we cannot say whether the tumour arose in the gall-bladder, in the ampulla, or midway between the two, spreading to the entire remainder of the bile system. If the tumour arose initially at a certain level and spread thence in the walls for long distances, why has it not also extended outwards into the neighbouring tissues more widely at that level than elsewhere?

That multiple origin certainly occurs with some carcinomata of the bile system is shown by the case of carcinoma of the gall-bladder with two distinctly separate areas of growth, each related to a stone. I have seen several surgically removed gall-bladders which, like that in Case II of Group B above, showed clear evidence that the tumour had arisen or was arising over a wide area of mucous membrane. Multiple papillomata of the gall-bladder are also known to occur (Brown and Cappell, 1937). There is strong evidence, then, that bile tract carcinomata often represent a simultaneous or progressive, multifocal or diffuse cancerization of an extensive field of epithelial tissue. In this respect they are not peculiar, for the same applies to some carcinomata of the skin, mamma, urinary tract and liver. Probably the leather-bottle stomach is the product of a similar process. It is, of course, clear that proliferative invasion is also an important factor in the spread of tumour cells in the wall of a viscus; this soon leads to coalescence of any areas of growth which were originally separate, and so establishes that widespread, almost uniform, infiltration which we have been discussing.

Speculations Regarding Causation.

The causative factors of most kinds of visceral cancer are still obscure, but, contrary to the pessimistic utterances of the uninformed, experimentalists are gradually gleaning many significant facts which will one day combine to lay bare the causation of many kinds of neoplasms. It will not be amiss to state the facts so far gleaned which may bear on the problem of bile tract cancers, and to speculate cautiously on their possible significance.

1. There is, first, the very frequent association of gall-stones with carcinoma of the gall-bladder. This association almost certainly has aetiological significance, for there is strong evidence that the stones commonly precede the cancer and do not merely result from its presence. It has often been stated that gall-stones induce carcinoma by chronic irritation, but this view has not been confirmed by experimental results. Many experimentalists (reviewed by Burrows, 1933) have endeavoured to produce gall-bladder tumours in animals by introducing foreign bodies, such as pebbles, suture materials, lanoline, paraffin, pitch, tar, cement, pumice, tile fragments and gall-stones. Inflammatory and proliferative changes, resembling those of human *cholecystitis proliferans*, have been produced; but, although some of the workers have interpreted the appearances as cancerous, Burrows concluded from his very thorough review and series of personal experiments that genuine carcinoma of the gall-bladder had not been

produced in any of the experiments. A repetition of such experiments with gall-stones from cancerous human gall-bladders might prove more successful.

2. Methylcholanthrene and cholanthrene are highly potent carcinogenic hydrocarbons, and are closely related chemically to the bile acids, from which they can be prepared by simple chemical steps (Cook and co-authors, 1936). Although the formation of these carcinogenic substances in the body has not so far been proved to occur, there is no intrinsic improbability that such transformations may take place. It is for future research to ascertain whether or not the gall-stones or the fluid contents of the bile tract from subjects of carcinoma of this tract contain methylcholanthrene or any related carcinogenic substances. The gall-stones from the case described above, in which two separate areas of carcinoma in the gall-bladder were each associated with a stone, would appear to be particularly promising material for such an investigation, and I have sent them to Professor E. L. Kennaway with this suggestion.

3. A remarkable experimental result recently obtained by Shabad and several other independent workers (see Hieger, 1940, and editorial in the *British Medical Journal*, February 8, 1941) is that suitable extracts of normal or diseased human liver may possess definite carcinogenic properties when tested experimentally on animals. This opens a new and extensive field of experimental inquiry. It is premature to attempt to assess its significance; but it at least suggests the possibility that under abnormal conditions the liver may form and excrete carcinogenic substances, which may excite neoplasia in the bile tract. This again points to the need for chemical and experimental study of bile from subjects of hepatic or biliary carcinoma for the possible presence of carcinogenic agents.

Should it eventually be proved that identifiable carcinogenic substances are indeed present in the gall-stones or fluid contents of the biliary tract in cases of carcinoma of these organs, this will afford an explanation of the widespread origin of the growths already discussed. This will then appear as the result of widespread and persistent application of the provoking agent over an extensive field of similarly susceptible tissue.

Summary.

An outline is given of a series of cases of carcinoma of the biliary tract examined *post mortem* in the last five years. These comprised 11 carcinomata of the gall-bladder, three carcinomata of the gall-bladder and bile ducts, and 15 carcinomata of main bile ducts. In the same period 14 cases of carcinoma of the pancreas were observed; but in at least two of these the growths may have arisen from the ampulla of Vater.

The frequency of occurrence of carcinomata of the main bile ducts has probably been under-estimated; in this series these exceeded in number carcinomata of the gall-bladder and also carcinomata of the pancreas.

While carcinoma of the gall-bladder is much more frequent in women than in men, this difference does not obtain with carcinoma of the ducts.

Gall-stones, which are usually present in cancerous gall-bladders, are usually absent from cancerous ducts.

The extent and distribution of many carcinomata of the biliary system strongly suggest diffuse or multicentric origin.

Possible factors in the causation of biliary carcinomata are briefly discussed.

Acknowledgements.

I am indebted to members of the honorary staff of the Alfred Hospital for clinical details of their cases.

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Reviews.

HYGIENE.

Dr. JOSEPH BROOKS'S "Handbook of Hygiene" is primarily intended for medical students, but it should serve also as a convenient little book of reference for medical practitioners. Nurses, teachers and others whose work entails supervision of the health of persons committed to their charge will also find it of use.

In the small compass of four hundred pages the author has assembled a mass of information which must usually be sought in the pages of the larger text-books. The selection of this information calls for nice discrimination, and in places the necessary condensation has been somewhat drastic. In some of the chapters on communicable diseases one is left with the impression that too much has been attempted in too small a compass, and that it would have been better to have either substituted a brief synopsis, or to have referred the student to his medical text-books. The chapter on the general practitioner and public health services is not particularly useful to the Australian student, dealing as it does with details applicable only to the United Kingdom. But the chapter on communicable diseases generally, the chapter on personal hygiene, and those on occupational hygiene and the assessment of normal health are all excellent. In spite of the limitations referred to, it is a good, useful little book, and it is not surprising that a second edition has so soon been required.

SYNOPSIS OF BLOOD DISEASES.

It is remarkable how much information has been gathered into a new book by A. Piney, "Synopsis of Blood Diseases".

Although the author, as he states in his preface, has reduced his phrases to a minimum, the small volume of 120 pages makes pleasant reading, and it is richly coloured with the author's own wide clinical experience.

The general principles of hematology are dealt with briefly but clearly. In the descriptions of individual conditions essential features are more fully set out. As well as dealing with the various diseases of the blood and blood-forming organs, the author has also included a chapter on diseases of the spleen and there are about twenty pages in which are described the symptomatic changes occurring in the blood in numerous diseases.

The nomenclature of the cells of the blood and their precursors which is used by the author is simple and easily followed. Throughout the book a very sensible interpretation is given of those matters which are still debatable.

A good feature is the space devoted to details of treatment, with definite directions as to therapeutics, and the author's unhesitating condemnation of valueless remedies, palliative only to the physician's conscience, merits special praise.

Stress is rightly placed on the part played by menstruation and pregnancy in the causation of idiopathic hypochromic anemia; but in the description of pernicious anemia it is not made sufficiently clear that this condition is a clinical entity, although a similar blood picture may be present in several other conditions.

The value of sternal puncture in the diagnosis of aplastic anemia, aleukemic leucemia and agranulocytosis is well brought out. The glossary, with references to the text, is

"Handbook of Hygiene for Students and Practitioners of Medicine", by Joseph W. Bigger, M.D., Sc.D., F.R.C.P., M.R.C.P. (London), D.P.H., M.R.I.A.; Second Edition; 1941. London: Baillière, Tindall and Cox. Large crown 8vo, pp. 428 with 18 illustrations, including 1 plate. Price: 12s. 6d. net.

"Synopsis of Blood Diseases", by A. Piney, M.D., M.R.C.P.; 1942. London: William Heinemann (Medical Books) Limited. Demy 8vo, pp. 122 with 4 coloured plates. Price: 10s. 6d. net.

most useful. The text itself contains very few misprints. Criticism, however, may be levelled at the failure to indicate the standard on which a hemoglobin value of 95% to 100% is regarded as the normal range.

While it is perhaps a little premature to have expected the inclusion of a discussion of the part played by Rh factors in *icterus gravis neonatorum* and allied conditions, the omission of any reference to vitamin K is to be deplored. For about three years there have appeared in the literature many articles concerning the part played by vitamin K deficiency in the causation of *melena neonatorum* and the hemorrhagic tendency in jaundiced patients.

A new impressionistic method of representation of blood cells has been introduced in four coloured plates. For normal blood cells the method may not be a happy choice, but the shadowy forms of immature cells and of cells seen in marrow films are well portrayed. The two tables setting forth the characteristics of the various cells in the red cell and white cell series are helpful, but might not be very illuminating to the novice.

Perhaps the best compliment that could be given to this excellent little book is to say that as Whitby and Britton's "Disorders of the Blood" is to the hematologist, so may be "Synopsis of Blood Diseases" to the physician and general practitioner.

THE PRINCIPLES OF ANATOMY AS SEEN IN THE HAND.

PROFESSOR WOOD JONES presents the problems and methods of human anatomy by the study of a single member, namely, the hand.

The first edition of this work appeared over twenty years ago and incorporated a series of lectures given to officers of the Royal Army Medical Corps at the Special Military Surgical Hospital at Shepherd's Bush. During the last war a demand arose for a knowledge of precise human topographical anatomy, and now with a new war, there is a recrudescence of this demand. The author has therefore taken this opportunity of completely revising the original text and of bringing it up to date, and in addition has added much new material of considerable morphological interest.

It is the author's opinion that gross topographical anatomy combined with an understanding of function has ever been the best contribution to anatomical science made by British anatomists, and this work, as much as any British product, tends to uphold this tradition.

The importance of restoring function to an important member such as the hand is obvious, and to be able to do this demands an accurate and precise knowledge of structure and function. It was partly the aim of this work to supply such knowledge and the value of this second edition has been increased by the addition of a new feature, a chapter bibliography, which will be useful to the reader who wishes to go deeper into any particular branch of the subject.

Although many of the topics treated in this work are to be found in most standard text-books of anatomy, there is much that has been collected together within its covers which cannot be found in such standard works, and much that is based on the author's own researches. Furthermore the matter is presented in the author's characteristically interesting and simple way.

One of the best chapters in the book is that on the action of muscles. The account given here is precise, simple, adequate and very instructive, and has no doubt exerted an influence on similar accounts given in the editions of standard text-books of anatomy which have appeared since the first edition of this work was published.

Other chapters which call for special comment are those on the extrinsic and intrinsic muscles of the hand and their morphology. That on the intrinsic muscles is particularly clear and useful.

The account of the fascial compartments of the hand and their tendon sheaths has been brought up to date, following the work of Kanavel and others whose publications have appeared since the first edition of this work was published.

The whole work is well illustrated with clear and accurate figures drawn by the author himself in his own effective style.

Altogether the work is not only instructive, but is interesting and stimulating and quite worthy of the pen of one of the foremost British anatomists.

"The Principles of Anatomy as Seen in the Hand", by Frederic Wood Jones, D.Sc. (London, Adelaide and Melbourne), F.R.S., F.R.C.S.; Second Edition; 1941. London: Baillière, Tindall and Cox. Royal 8vo, pp. 428, with 2 plates and 144 illustrations. Price: 25s. net.

The Medical Journal of Australia

SATURDAY, OCTOBER 10, 1942.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

Reference to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

"AUDIENCE ENEMIES."

At ordinary times the conduct of scientific meetings provides material for comment, for the reason that, if genuine interest is to be created and knowledge increased, the greatest possible amount of good must be obtained from such gatherings. During a war full audiences are hard to obtain and it must be concluded that those who do make an effort to attend are really anxious to learn something. During a war therefore it is advisable to inquire whether scientific meetings are being made as effective as possible, or whether they are allowed to get out of hand, to run wild as it were. Since a wartime audience may be regarded as keener than one that meets in a routine fashion in the days of peace, it should be possible to be punctilious in the matter of procedure. If this could be done it would be helpful in the post-war period when the full routine of meetings is once more resumed in Australian cities. In this country we have suffered in the past from incompetent chairmen, from rambling authors and from irrelevant speakers. Occasionally a protest has been made in these columns, partly in exasperation because opportunities have been lost and energies dissipated and partly in the hope of bringing about a change. That Australia is not alone in this affliction is evident from letters which have recently appeared in *Science* under the title "Audience Enemies". Almost every word of these letters is applicable to Australian conditions—we certainly can recognize the different types of "enemy"—and the opportunity of bringing them to the notice of those who attend Australian medical meetings cannot be allowed to pass.

E. F. Du Bois, who began the correspondence, named six "audience enemies": "The Mumbler", "The Slide Crowder", "The Time Ignorer", "The Sloppy Arranger", "The Lean Producer", "The Grasping Discussor".¹ Later on other letters appeared from J. B. Lucke, G. Dalldorf and J. Broadhurst, who added "The Reader".² Let us confront these enemies one by one; we may be able to add one or two peculiar to Australia. The "mumbler" has poor

habits of speech, he places his voice incorrectly and his pronunciation is slovenly; he talks to the screen and only those in the first few rows of the audience can follow his remarks. Whatever else a speaker does, he should at least face his audience and try to speak loudly enough to be heard. In this country we have known some first rate speakers among medical men; some of these have been successful because they have studied elocution. There is no doubt that any practitioner who is likely to have to do much public speaking will improve his position enormously if he will make a short study of speech and the art of speaking. Du Bois describes the "slide crowder" as one who not only shows too many slides, but crams into each as many details and figures as the typewriter with the smallest possible type will allow. He asks whether the "slide crowder" has never realized that typewritten lettering is not used for advertisements or posters on account of its failure to convey information quickly and distinctly, and whether he has ever tried to read his slides from the back of the lecture theatre. Often it appears that he knows they are illegible because, "to make the suffering of the audience complete", he starts to read *in extenso* all the details and he reads them to the screen and not to the audience. Then comes the "time ignorer". The first offenders are the chairman and the members of the audience—the chairman because he does not commence the meeting at the advertised time, the members of the audience because they are "positively unable" to be anything but late, although on the day before they managed quite well not to miss the cocktails before the club dinner. The offending speakers fall into two groups. One comprises those who have not bothered to rehearse the reading of their papers with a watch, or if they did have a rehearsal, forgot that it takes much longer to deliver an address from a platform than to read it from a desk. The other group consists of those who are so convinced of their own importance or of that of their paper that they feel quite justified in upsetting the whole programme by their verbosity. The "sloppy arranger" makes the audience suffer because of his method of presentation. Sometimes he has given little thought to the way in which he describes his findings and puts forward his conclusions. More often he intends to lead his audience "through a jungle of details to a breath-taking climax" only to find that when he arrives there most of his listeners have dropped exhausted by the wayside. This type of man is different from the "lean producer" whose fault, we are told, is not that his results are only a minor contribution to knowledge—he is really fortunate if he can make any small addition to knowledge—but that "he tries to bolster up his findings with a flood of unwarranted additions". The participants in the correspondence in *Science* had much to observe about the man who literally reads his paper from the typewritten manuscript. Lucke put it well when he remarked that this man addressed his paper and not his audience. Very few authors can read a paper and hold the interest of an audience as though they were not reading it. Latterly it has been remarked that an increasing number of speakers at Branch meetings are speaking from notes and not reading at all. There are very few who can orate in the manner of a Wood Jones, but there is no doubt whatever that the man who refuses to read and is content to speak from notes, holds the interest of his audience and delivers his message in a way that the

¹ *Science*, March 13, 1942.

² *Ibidem*, April 10, 1942.

"reader" cannot do. This is because the speaker looks at his audience and not at his typescript. In the correspondence under discussion it was suggested that reading was not only ineffective but actually discourteous. The reading implied that anyone could have read the paper, but that the author himself did it just to let the audience have a look at him. There are, of course, some authors who are worth watching whether they read or speak to notes. So much for those who contribute papers. Let us turn to the "grasping discussor". We all know this type of speaker—he is determined to be heard at any cost. He comes with long notes carefully prepared beforehand and with no knowledge of whether they are really relevant or not. They are taken with deliberation from a breast pocket, unfolded before the gaze of the patient audience and read from the beginning to the bitter end. Then, we are told, there is another type of man who "just happens to have in his pocket a few slides" which he would like to show. And, of course, there is the man who "once saw a case" which he proceeds to describe. It appears to be relevant, but may be explained in several ways; nevertheless it is the one swallow which the speaker seems to think indicates the full blast of summer.

To the "audience enemies" of our American colleagues we can in Australia add another who has been dubbed the back-slapper. Unfortunately he is all too common. Nearly every one who takes part in a discussion begins by congratulating the author of the paper under discussion. Sometimes the results that have been put forward are described as outstanding and the method of presentation is laud, and so on. Such remarks are so obviously fulsome that the man who makes them is ridiculous. Fortunately in medical circles we have not adopted the procedure of certain scientific societies at whose meetings the principal speaker is introduced by at least two members of the committee and is offered a vote of thanks to which three or four others have to speak. By all means let us thank our speakers for the trouble they have taken, but let us be sparing in our congratulations and eulogies. When we congratulate and praise everybody we congratulate and praise nobody.

What are we to do with the people whom American scientists have called audience enemies? They must be turned from their iniquitous ways rather than eliminated. This may be done better by chairmen of meetings than by anyone else. The worst of it is that chairmen have themselves to be made to realize that by casual management of meetings they do a disservice to the cause that they have so obviously espoused. If when chairmen have taken themselves in hand secretaries will try to persuade authors to speak and not to read their papers we shall be well on the way to a new era, to the elimination of practices which at present justify use of the term audience enemies.

Current Comment.

THE ASPIRATION OF PETROL INTO THE LUNGS.

In 1930 J. C. S. Battley reported a case in which a boy of eight years of age aspirated liquid petrol into his lungs.¹ (Gasoline is the term used in American journals.) The

boy suffered from certain general symptoms which were regarded as probably having resulted from rapid pulmonary absorption. Pneumonia developed; it was characterized by a low temperature, a prolonged high respiratory rate and wandering of the pulmonary signs. The patient could taste petrol in his mouth for four weeks and material obtained by lung puncture yielded no organisms on incubation. After ten weeks the patient was able to return to school. Battley thought that the case was unique, since he could find no similar record in the literature. From the fact that the patient tasted the petrol for four weeks Battley concluded that it must have remained in the lung in some quantity during this time. The length of the illness was also due to the long contact of petrol with lung tissue. The wandering nature of the signs suggested to Battley that two processes were at work. Direct action of the petrol on the alveolar walls with secondary infection might account for the pneumonia, and the petrol might move to other parts and start fresh areas of inflammation. Battley also thought that atelectasis could produce a similar picture—swelling of the bronchial mucous membrane, caused by the traumatic effect of the petrol, might shut off portions of the lungs. Though such isolated patches might remain sterile, they would be likely to be infected secondarily. This process, like the other, might, Battley also thought, be repeated at other points, owing to shifting of the petrol.

Wartime restrictions regarding petrol have increased the temptation to siphon it from one container to another and to suck at tubes to accomplish this siphoning. C. L. Cope, who makes this remark, has reported a case in which pneumonia followed the aspiration of petrol.² He also makes mention of a death which was reported in the daily Press in England as having followed an accident of this kind. The patient in the case reported by Cope was a healthy lorry driver who was thought to have sucked about a quarter of a pint of petrol into his mouth; some of it "went the wrong way". He tried to cough it out, but in a few seconds became very short of breath. He felt as though he was "bursting for breath" and lost consciousness, becoming deeply cyanosed. When he recovered consciousness he was able to breathe more freely. Eventually he suffered from a form of pneumonia which would appear to be consistent with the description given by Battley that has been mentioned.

Cope divides the effects of the aspiration of petrol into three groups: immediate, general and delayed. The immediate effects have been described in connexion with Cope's patient. If much petrol enters the lungs rapid death from asphyxia may result. If much is swallowed the patient may experience burning pain in the oesophagus, epigastric pain, nausea, vomiting and diarrhoea. Collapse may be extreme and cyanosis very pronounced. The severity of the alimentary symptoms varies and is not closely related to the amount swallowed. Cope points out that the general effects are seen in their uncomplicated form when petrol vapour is inhaled, as, for example, in garage pits. When petrol is absorbed into the blood stream, a transient exhilaration soon passes into drowsiness with ringing in the ears, cyanosis and unconsciousness. On recovery of consciousness nausea, dizziness, headache and drowsiness may persist for some time. Petrol in the blood stream is largely excreted in the expired air, and by irritating the lungs may cause bronchitis and coarse crepitations in the chest. Cope here gives a warning to the clinician that the presence of such crepitations in a person who has swallowed petrol should not be regarded as evidence that petrol has been directly aspirated into the lungs. He recalls that Legludic and Turlais showed in 1914 that intravenous injection of small quantities of petrol into rabbits often leads to dyspnoea, cyanosis and pulmonary congestion and sometimes even to hemorrhage and other pulmonary effusions. He adds, however, that it is unlikely that when petrol is aspirated into the lungs symptoms referable to petrol in the blood stream play more than a minor part in the production of the clinical picture. In discussing the delayed effects of aspiration of

¹ *The Journal of the American Medical Association*, May 17, 1930.

² *The Lancet*, April 18, 1942.

petrol. Cope points out that information is scanty. He states that Waring has shown that the injection of kerosene into the trachea of a dog produces death in a few hours with oedema of the lungs and a hemorrhagic pneumonia, the alveoli being filled with exudate containing many lymphocytes. The lungs suffer a severe insult when kerosene enters them and the same, Cope adds, is undoubtedly true of petrol. The signs in his case were consistent with an acute hemorrhagic pneumonitis similar to that described as occurring in Waring's dogs. In his case pleural effusion was an added feature and occurred with a rapid onset. There was no pleural effusion in Battley's case. Cope concludes that if aspiration of petrol into the lungs is not immediately fatal, either a patchy pneumonia or a pleural effusion may occur. As with other foreign matter in the lung, the right side is affected oftener than the left. After recovery probably no permanent disability results, but "no information seems to be available about the more remote effects of the accident". It is possible, Cope thinks, that in some circumstances chronic fibrosis or even bronchiectasis may gradually develop, though no cases have been reported.

It may perhaps be well to point out that the effects of aspiration of petrol into the lungs comprise only a small aspect of petrol intoxication. The larger subject is of intense interest and has been exhaustively discussed by Willard Machle;¹ study of this article will be found well worth while. It is not always realized that there is a wide variability in the chemical composition of petrol; for this reason the effects of intoxication may show a wide divergence. Machle points out that petrol is absorbed more quickly if it contains a high concentration of benzene and other aromatic hydrocarbons, since the solubility product of benzene in blood, like the coefficient of water solubility, is from three to four times as great as that of natural petrol. Further discussion of this larger subject, however, must be left for another occasion. For the present we must be content to allow Cope's communication to draw attention to an important clinical condition and to the need for care in the handling of a substance which is becoming harder to obtain.

THE EXPECTORANT ACTION OF IODIDES.

THE use of the iodides of potassium and sodium in the treatment of such conditions as asthma is more or less general. The view is commonly held that the iodides render the bronchial secretions less viscid and help the patient to get rid of his sputum. In the report of a recent study on this question, L. Tuft and N. M. Levin state that the clinical use of expectorant drugs is predicated purely upon an empirical basis. They tried to find a drug which would liquefy the viscid secretions of the asthmatic patient. Their report is of interest because it shows that the general use of iodides for this purpose is justified. They refer to experiments by Gordonoff and others who found that the action of expectorants depended upon the predominance of one of two factors. The first of these factors was the stimulation of the smooth musculature of the bronchi and was called the excreto-motor action of the drug. It produced either increased bronchial peristalsis or a wave-like motion dependent entirely upon movement during the respiratory act. The second factor, which they called secretolysis, was the liquefaction of the bronchial secretions by actual excretion of the drug into the bronchi and subsequent delay in resorption of these secretions. Gordonoff's experiments were carried out on animals, and Tuft and Levin have investigated the effects of drugs in man with the aid of a bronchoscope. They administered the drug either parenterally or orally and aspirated bronchial secretions by the bronchoscope. If possible, the condition of the bronchial mucosa was observed during the process. The secretions were studied chemically for the presence of ions not usually or normally detectable. The patients used for the investigation were sufferers

from asthma, bronchiectasis or some other pulmonary condition requiring bronchoscopic examination or treatment. The general procedure was to insert the bronchoscope and aspirate a control specimen of secretion. Sodium iodide was then injected intravenously in doses of 15 to 31 grains. After the injection specimens of secretion were withdrawn at five-minute intervals for as long as it was possible to retain the bronchoscope in position. Specimens of saliva and urine were also examined. It was found that iodides were excreted into the bronchi within fifteen to twenty-five minutes of intravenous injection. Tuft and Levin found that intravenous administration offered no important advantage over the oral method, especially in view of the added work entailed in its use. Salivary excretion of iodides occurs promptly, but urinary excretion is delayed. It is suggested that this indicates that the salivary glands and bronchi act as the selective excretory organs for this drug and that urinary excretion must await resorption from the bronchi and gastro-intestinal tract.

Tuft and Levin state that under the conditions of the experiment it was difficult to determine whether the amount of bronchial secretion was increased or to detect any changes in the bronchial mucosa. That the amount of secretion is increased may be granted, both from clinical experience in asthma and allied conditions and from the observation of apyphilitic patients who take large doses of iodides. If this is granted it may be concluded that Tuft and Levin's observations as well as the work of Gordonoff and other investigators have made it clear that the use of iodides as an expectorant in certain pulmonary conditions is not empirical.

COLOUR FILMS IN FIRST-AID TRAINING.

A GREAT deal of useful work is being carried out in different parts of the Commonwealth in the training of persons attached to first-aid posts and other "A.R.P." personnel. Persons with no medical training are undergoing valuable and in some cases detailed courses of instruction in what they are likely to be called on to do in the event of raids by hostile air-craft or actual enemy invasion. One of the methods in common use is the fashioning of artificial wounds by the use of "Plasticine", grease paint, plaster of Paris, pieces of bone and so on. Some of these creations are said to have a ghastly and often convincing appearance, the gaping and lacerated wound and the compound fracture being luridly reproduced. There is little doubt that if instruction is wisely blended with this kind of practical demonstration the pupil will not be quite at a loss when faced with reality. Another method, capable of being used for the instruction of large audiences, has been described by B. H. Humble and A. G. Mearns who write from the Glasgow Casualty Service.¹ They have prepared a colour film in which wounds created by a special process were used, and they staged and filmed a mock air-raid incident in which trapped and wounded casualties were liberated from heavy debris and treated first by street methods and ultimately in an aid post. This film has had a good reception wherever it has been exhibited and its realism is shown by a fainting rate of 1% among audiences! The wounds are prepared in "Plasticine" which is pressed firmly so that its edges blend into the surrounding skin. Grease paint is applied in a way which Humble and Mearns describe in detail; pieces of glass or bone are built into the "Plasticine" and a synthetic solution to represent blood puts the final touches to the creation. When lacerated wounds have been created brachial and femoral hemorrhages have been added by means of a small Higginson syringe, a length of Southey tubing and an ammoniacal carmine solution. When this apparatus is concealed under the clothing or blankets a "grimly realistic effect" is obtained. To make the picture complete the patient's face must be "made up" to suggest profound shock; this is done with fullers' earth, grease paint and so on. Bands of perspiration are applied by an atomiser to the forehead of the patient who must act the part.

¹ The Journal of the American Medical Association, December 6, 1941.

¹ The Lancet, May 9, 1942.

Abstracts from Medical Literature.

OPHTHALMOLOGY.

The Diagnostic Significance of Retrobulbar Neuritis.

ROSA FORD (*The British Journal of Ophthalmology*, March, 1942) reports the case of a woman, aged twenty years, who in 1923 suffered from retrobulbar neuritis, for which no cause could be found. The patient recovered spontaneously in seven weeks, only to be attacked three years later by rheumatoid arthritis and one year later again by iritis. The arthritis became crippling, and when in 1931 she was examined by the author for the first time on account of a third attack of iritis, the acute pain in her joints had confined her to bed for five months. The author postulated the existence of a septic focus in the nasal sinuses, in spite of the absence of nasal signs or symptoms. "Argyrol" and glycerin were applied to the nasal cavities, and a flow of mucus immediately began; this changed in three weeks to the discharge of small lumps of mucopus. The iritis, which had been present for five weeks, promptly cleared up, and the arthritis was brought to a standstill in three weeks. The patient was soon able to leave her bed and travel in a motor car. The author points out that the presence of sinusitis can be detected in the early stages by the ophthalmic surgeon, even when signs or symptoms are lacking, by examination of the visual fields. The contraction of the fields reveals the activities of the hidden exudation, deprived of its normal exit. The diagnosis is confirmed by the widening of the fields and the restoration of sight when drainage is reestablished. In the case under discussion, owing to the severe illness of the patient, the diagnosis had to be made from the history: from the occurrence of three successive diseases, each known to be due sometimes to sepsis, the author deduced that there was a focus of origin somewhere in the body. As no focus could be found, she suspected the sinuses, since in them infection is known to linger for long periods, and since they are constantly open to infection from respiratory disorders *et cetera*. Moreover, such an infection is known to be able to remain completely hidden for long periods. She considers that its existence in the case under discussion was confirmed by the results of treatment. The author concludes that retrobulbar neuritis is a danger signal, which will give the ophthalmologist, if he recognizes it, a role in the prevention as well as in the cure of disease, and that it has a diagnostic significance in the aetiology of other diseases.

ALLAN H. BRIGGS (*The British Journal of Ophthalmology*, May, 1942) replies to Rosa Ford's contentions concerning retrobulbar neuritis. He considers that the patient, who has not yet reached the age of forty years, may yet prove to be a victim of disseminated sclerosis. He is unconvinced that nasal sinusitis was the cause of the patient's retrobulbar neuritis, rheumatoid arthritis and iritis, since he finds no evidence of the existence of nasal sinusitis preceding interference with the nasal cavities. He suggests that this inter-

ference was the cause of the flow of mucus and later of mucopus. He points out that rheumatoid arthritis and intractable recurrent iridocyclitis are not uncommonly associated, and holds that evidence in the case under discussion that both were due to nasal sinusitis is entirely lacking. The author further suggests the possibility that both conditions may even have been relieved by the development of the sinusitis; a recognized method of treatment of these conditions is the deliberate induction of fever and leucocytosis, whether by protein shock therapy or other methods.

Phlyctenular Ophthalmia.

ARNOLD SORSEBY (*The British Journal of Ophthalmology*, April and May, 1942) presents a study of the aetiology of phlyctenular ophthalmia, with a review of the literature, an analysis of cases treated at one hospital during the period from 1921 to 1940, and the results of detailed investigations of patients treated at the same hospital from June, 1935, to December, 1940. Each point investigated was checked in control material obtained chiefly from among the children treated for blepharitis at the hospital. A number of observations were made. (i) The greater incidence of the disease among girls than among boys, mentioned in the literature, was confirmed. (ii) The author found no evidence that malnutrition, focal sepsis and pediculosis were more frequently associated with phlyctenular ophthalmia than with blepharitis. (iii) Non-bacterial allergy was not found to be a causative factor. (iv) Positive reactions to tuberculin tests were obtained from 84.8% of patients with phlyctenular ophthalmia, and from 81.7% of those aged under six years. The corresponding figures for blepharitis were 15.3% and 8.0%. (v) Clinical tuberculosis was present in 6.4% of cases of phlyctenular ophthalmia; there were no cases in the control series. (vi) Radiological evidence of tuberculosis was found in 72.2% of cases of phlyctenular ophthalmia, as against 8.4% to 16.1% of the controls. (vii) A family history of tuberculosis was present in 28.9% of cases of phlyctenular ophthalmia, as against a computed figure of 3.7% of children in the normal school population. (viii) The erythrocyte sedimentation rate was raised in 79.8% of cases of active phlyctenular ophthalmia; the rate was normal in quiescent phlyctenular ophthalmia and blepharitis. (ix) Tubercle bacilli could not be recovered from the gastric contents of 50 patients with phlyctenular ophthalmia or from the excised tonsils of 20 others. (x) Investigation of the subsequent history of patients treated between 1921 and 1931 revealed that among those who had suffered from phlyctenular ophthalmia the incidence of clinical tuberculosis was 5.3% and the mortality rate was 0.8%; for the controls the figures were 0.8% and 0.1% respectively. The author concludes that phlyctenular ophthalmia is a manifestation, not of tuberculous disease, but of tuberculous infection; the phlycten appears only when a hyperallergic phase is present and there is a suitable exciting factor of endogenous or exogenous origin. He suggests that the age and sex incidence and the seasonal variation of phlyctenulosis are best explained on the assumption that the affection is tuberculous. The prognostic

significance of the phlycten is graver than that of a positive reaction to tuberculin tests in childhood.

Oral Sepsis and Ophthalmology.

H. T. ROOPER-HALL (*The British Journal of Ophthalmology*, April, 1942) discusses the role played by oral sepsis in ophthalmological disorders and makes a number of recommendations. He thinks that a dental surgeon should be attached to each ophthalmic hospital to examine all patients, in many cases radiographically. All in-patients should undergo a dental examination at the earliest possible moment after their admission to hospital. One or more visiting honorary dental surgeons, experienced in the importance of oral sepsis, might be attached to large hospitals, to make diagnoses and suggest lines of treatment. The author considers that patients are benefited by a short stay in hospital after dental operations, and that some of the more drastic procedures should be carried out with the patient in the recumbent position and in a suitable operating theatre. Cooperation and consultation between dental surgeons and other members of the staff should be encouraged by making the visiting periods coincide, to the ultimate benefit of patients. Only by such cooperation and consultation can complete statistics be obtained and the importance of oral sepsis in ophthalmology estimated. In conclusion, the author urges the appointment to the staff of every medical and dental school of a lecturer familiar with both medicine and dentistry, to put before students from both courses aspects of the subject of oral sepsis and its relationship with general disorders. This would cause the students to understand each other's work.

OTO-RHINO-LARYNGOLOGY.

Fusospirochaetal Organisms and Tonsillitis: Bismuth Therapy.

Using suction to obtain material from the depths of the tonsil crypts, J. F. LEWIS (*Archives of Otolaryngology*, April, 1942) has demonstrated a greater concentration of fusospirochaetal organisms in these regions than is commonly believed to exist. Although haemolytic streptococci are also found, he believes that these and the Vincent's fusospirochaetal organisms are symbiotic and that each plays a part in the production of the common inflammatory reactions. Short histories are quoted of nine cases selected from the author's records; in all of them suction from the crypts revealed myriads of fusospirochaetal organisms during attacks of acute tonsillitis. At first arsenical therapy with "Mapharsen" and similar preparations for intravenous use was employed, usually with rapid relief of symptoms and subsidence of local reactions. Later, bismuth compounds were used in place of the arsenicals with even more strikingly rapid response, only one or two intramuscular injections being required to restore the patient to normal. Whether the bismuth is streptococcidal or fusospirochaeticidal or both is not yet determined, but the author agrees with others that it is not effective in pneumococcal naso-pharyngitis. A preparation of bismuth submalicylate in oil is usually employed. This is stated

to be slowly absorbed, but to produce no pain, in contrast with discomfort at times encountered after the use of soluble bismuth preparations. A single intramuscular injection of one cubic centimetre of the preparation was usually found sufficient for an adult with acute tonsillitis. In only three cases has the author seen toxic effects from the treatment. Bismuth is thought to be more effective than sulphanilamide, and less toxic.

Short-Wave Therapy in the Treatment of Sinusitis and Allergic Rhinitis.

G. R. BRIGHTON, V. B. SNOW AND H. S. FRIEDMAN (*The Journal of the American Medical Association*, February 14, 1942) have used in the treatment of patients suffering from sinusitis and allergic rhinitis a machine of 12 metre wave length and with sufficient output to permit the use of arms with spacing. Cases were studied in four groups: allergic, acute purulent, chronic purulent, chronic non-purulent. Of the patients with the allergic type of condition 16% reported some temporary improvement, 86% were not benefited at all, and after a three months' follow up all were as much troubled as before treatment commenced. The authors conclude that the method is of no value in allergic rhinitis. In acute purulent sinusitis the principal relief obtained was from headache. Patients with tenderness did not do well. It is considered that this symptom indicates sinusitis of a severe degree and with poor drainage, so that tissue turgescence, likely to be produced from the heating process, may do harm unless drainage is first established. The conclusion is that the use of short-wave therapy in acute cases is not warranted until routine simple rhinological methods have failed. While 24% of a series of 110 patients suffering from chronic sinusitis, confirmed by X rays and irrigations, reported symptom relief after six weeks of treatment, only 8% maintained any benefit after three months. In all instances most improvement claimed was symptomatic rather than objective. No case was seen in which sinuses previously dull on X-ray examination or transillumination became appreciably clearer. Irrigations

and operative measures remain the most suitable methods in chronic suppurative cases. Most benefit from short-wave therapy was obtained in the chronic non-purulent cases, with hyperplastic mucosa and occasional mucoid discharge; but even in this group only 19% of patients remained improved after a three months' follow up. As in the acute condition, greatest success in these cases also was in regard to the relief of headache. Patients with tenderness again were found rarely to benefit from the therapy.

The Local Use of Sulphathiazole in Simple Mastoidectomy Wounds.

DUPONT GUMERY AND F. J. PUTNEY (*Archives of Otolaryngology*, March, 1942) have treated twenty mastoidectomy wounds with sulphathiazole and in twenty other cases packing with such antiseptics as iodoform was used. Otherwise the mode of operation and post-operative treatment was identical in the two groups of cases. In three cases in which operation was bilateral, one side was treated with sulphathiazole and the other without. None of the cases were specially selected for the sulphathiazole treatment. The pre-operative duration of ear disease varied from one to six weeks in both the specially treated series and in the controls. In all cases cultural methods of examination were used; *Streptococcus hemolyticus*, pneumococcus type III and *Staphylococcus aureus* were found in similar proportion in each series. Sulphathiazole was selected as being the most suitable drug for pneumococcal and staphylococcal infection, and equal in effect upon streptococci to sulphanilamide. None of the drug was given by mouth. Tests of the blood indicated that there was little or no absorption from the wound, so that the effect may be regarded as purely local. A considerably increased rate of cleaning of the wound secretions was noted, so that it was possible to tell treated from untreated cases merely by noting the appearance of the dressings. Apart from cleaning of the wounds, healing appeared to be hastened, although there was noted a slightly increased tendency to bleeding as the dressings were with-

drawn. In only one of the treated cases was there an abscess of the wound; no other complications were observed. In the control group, disruption of the wound occurred in 25%. In regard to days spent in hospital and post-operative drainage days in the two series the figures were 24.9 to 9.4 and 31.6 to 14.9 respectively in the untreated and treated cases.

Local Use of Sulphanilamide in Otogenic Infections.

F. L. BRYANT (*Archives of Otolaryngology*, February, 1942) has studied fifteen cases of otogenic infection. One patient was operated on for acute mastoiditis, but after two days symptoms of sepsis were found to have increased. The wound was reopened and sulphanilamide powder was applied; this was repeated every day for seven days, after which healing was uneventful. Of eleven patients who had chronic otitis media, nine had previously been given routine local treatment. The perforations were central in all and varied in size from one millimetre in diameter to subtotal loss of the tympanic membrane. In all examination of smears revealed a mixed infection. The ears were first dried and swabbed over with 70% alcohol, after which a not too heavy film of sulphanilamide was insufflated into the middle ear. From two to five treatments were required to produce a dry ear. In five of the eleven patients, the treated ears remained dry for over one year after the first treatment, and in several instances in spite of intercurrent naso-pharyngeal infections. In one case an attack of naso-pharyngitis caused a return of discharge, but this again responded to the routine treatment. In the only failure persistent discharge was attributed to cholesteatoma, and operation was advised. In another instance discharge, although not entirely eliminated, became reduced to scanty thin mucus. In three other cases radical mastoidectomy had been performed, but discharge persisted in spite of routine post-operative measures. In each of these cases, two to four sulphanilamide treatments, given on alternate days, had produced a drying of all secretions.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 258, of September 24, 1942.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Reserve.

Appointment.—Ian Holland Martin is appointed Surgeon Lieutenant, dated 7th August, 1942.

Promotion.—Surgeon Lieutenant James Escourt Hughes is promoted to the rank of Surgeon Lieutenant-Commander, dated 1st August, 1942.

ROYAL AUSTRALIAN AIR FORCE.

Citizen Air Force: Medical Branch.

Temporary Wing Commander (Acting Group Captain) W. D. Counsell (1164) is promoted to the rank of temporary Group Captain with effect from 1st April, 1942.—(Ex. Min. No. 142—Approved 23rd September, 1942.)

Archibald Simpson Anderson, M.B., B.S., D.O.M.S., F.R.A.C.S. (6714), is appointed to a commission on probation with the rank of Flight Lieutenant (temporary Squadron Leader) with effect from 20th August, 1942.

The appointments of the following officers are terminated with effect from the dates indicated: Flight Lieutenant A. G. Brodsky (3896), 25th August, 1942; Flying Officer J. S. McNamara (1609), 27th August, 1942.

Reserve: Medical Branch.

The following are appointed to commissions on probation with the rank of Flight Lieutenant with effect from the dates indicated: Leslie Edwin Clay, M.B., B.S. (6717), 19th August, 1942; Leslie Charles George Colville, M.B., B.S. (6718), John Andrew Edye, M.B., B.S. (6715), John Patrick Lloyd Noonan, M.B., B.S. (6716), 20th August, 1942.—(Ex. Min. No. 147—Approved 23rd September, 1942.)

DECORATIONS.

Major Frank Douglas Stephens, A.A.M.C., has been created a Companion of the Distinguished Service Order for gallantry in the Western Desert.

Commendation cards, signed by General Sir T. A. Blamey, K.C.B., C.M.G., D.S.O., Commander-in-Chief, Allied Land Forces in Australia, have been dispatched to the following:

Captain William McIntosh Rose, A.A.M.C., for services in the New Britain Area during March, 1942.

Major Edward Charles Palmer, A.A.M.C., for services on the south coast of New Britain from January 23 to April 12, 1942.

Captain Charles Roger Dunkley, A.A.M.C., for ingenuity and medical skill in Timor from February 19 to May 25, 1942.

We have been notified by the Director of Naval Medical Services that Surgeon Commander Lionel Lockwood, M.V.O., M.D., B.S., R.A.N., has been awarded the Distinguished Service Cross.

National Emergency Measures.

AMENDMENTS OF NATIONAL SECURITY (ALIEN DOCTORS) REGULATIONS.

The following amendments of National Security (Alien Doctors) Regulations were issued on August 19, 1942, under the *National Security Act, 1939-1940*.

1. Regulation 3 of the National Security (Alien Doctors) Regulations is amended by inserting after the definition of "licence" the following definition:

"registered medical practitioner" means any person registered as a medical practitioner under the law of any State or Territory of the Commonwealth;"

2.—(1.) Regulation 10 of the National Security (Alien Doctors) Regulations is amended by adding at the end of sub-regulation (3.) the words "or by a person or authority specified in the licence".

(2.) Any licence granted by the Board before the commencement of this regulation shall be as valid and effectual as if the licence had been granted after the commencement of this regulation.

3. After regulation 15 of the National Security (Alien Doctors) Regulations the following Regulation is added:

"16.—(1.) An alien, other than a registered medical practitioner or a person licensed under these Regulations, shall not—

(a) give or perform, for fee or reward, any medical or surgical service, attendance, operation or advice;

(b) advertise or hold himself out, directly or indirectly by any name, word, letter, title or designation, whether expressed in words, or by letters, or partly in one and partly in the other (either alone or in conjunction with any other word or words) or by any other means whatsoever as being entitled, or qualified, able or willing to practise medicine or surgery, in any one or more or all of its branches, or to give or perform any medical or surgical service, attendance, operation or advice.

"(2.) A person licensed under these Regulations shall not permit the use of his name, or otherwise give countenance, assistance, co-operation or advice, in connexion with any medical or surgical service, attendance, operation or advice performed or given, or intended or offered to be performed or given, whether as principal or as a partner, servant or agent, by an alien other than a registered medical practitioner or a person licensed under these Regulations, or in connexion with anything incidental to, or arising out of, any such service, attendance, operation or advice, including the issue of any certificate, notification, report or other like document.

"(3.) Nothing in this regulation shall apply to anything done—

(a) by a member of the naval, military or air forces of His Majesty or of any allied or other foreign force serving in association with His Majesty's armed forces in the course of his duties;

(b) by any person in pursuance of regulation 4c of the National Security (Medical Co-ordination and Equipment) Regulations;

(c) in or in connexion with the proper training and instruction of *bona fide* students, or the customary employment of dressers, accoucheurs, dispensers, surgery attendants, and skilled mechanical or technical assistants under the immediate personal supervision of a registered medical practitioner or a person licensed under these Regulations; or

(d) in the course of the lawful business or occupation of a dentist, pharmaceutical chemist or druggist, nurse, accoucheur or masseur."

The following is a list of alien doctors licensed in several categories by the Commonwealth Alien Doctors' Board on September 1, 1942.

I. Licensed to practise medicine in all branches of medical science in such places as are directed by any State Medical Co-ordination Committee appointed under the *National Security Act*:

Licence.		Name and Qualification.	Last Recorded Address.
Date.	No.		
28/8/42.	45	Cohn, Siegfried. M.D., Würzburg, 1922.	C.O. Home Office Representative, Department of the Army, Melbourne, Vic.
2/5/42.	9	Fabian, Ernst. M.D., Berlin, 1923.	14, Alma Road, St. Kilda, Vic.
2/5/42.	15	Fruchtmann, Robert. M.D., Lwow, 1928.	Hospital for Sick Children, Brisbane, Qld.
28/8/42.	46	Gruenfeld, Robert. M.D., Vienna, 1923.	8th Labour Coy., A.M.F., Vic.
2/5/42.	1	Haneman, Samuel. M.D., Breslau, 1926.	8, Fletcher Street, Bondi, N.S.W.
10/7/42.	43	Herr, Edgar. M.D., Vienna, 1938.	110th Australian General Hospital, W.A.
2/5/42.	16	Hoefer, Agnes Marie. M.D., Minnesota, 1935.	121, Darroch Terrace, Brisbane, Qld.
28/8/42.	47	Kassel, Arthur. M.D., Breslau, 1923.	C.O. Home Office Representative, Department of the Army, Melbourne, Vic.
2/5/42.	10	Landauer, Friedrich Max. M.D., Strassburg, 1914.	4, Karbarook Avenue, Prahran, Vic.
2/5/42.	2	Landecker, Hans Martin. M.D., Koenigsberg, 1931.	49, Suttie Road, Double Bay, N.S.W.
2/5/42.	3	Mancold, Stephen. M.D., Berlin, 1924; and Pess, 1929.	"Delicam", High Street, Randwick, N.S.W.
2/5/42.	4	Polk, Levie. M.D., Amsterdam, 1922.	No. 1, Glamis Place, 14A, Ocean Avenue, Edgely, N.S.W.
2/5/42.	5	Protopopoff, Nicholas Paul. M.D., Odessa, 1917.	41, King Street, Waverton, N.S.W.
28/8/42.	48	Reichmann, Georg. M.D., Freiburg-Breisgau, 1924.	8th Labour Coy., A.M.F., Vic.
28/8/42.	49	Schatzki, Paul. M.D., Frankfurt, 1934; Pisa, 1934.	8th Labour Coy., A.M.F., Vic.
2/5/42.	17	Simons, Sofie. M.D., Bonn, 1927.	48, Sheffield Street, Malvern, S.A.
2/5/42.	11	Singer, Kora Renata. M.D., Vienna, 1932.	32, Queen's Road, Melbourne, S.C.S. Vic.
2/5/42.	6	Steiner, Robert. M.D., Vienna, 1923.	178, Victoria Road, Bellevue Hill, N.S.W.
2/5/42.	7	Strauss, Hugo. M.D., Vienna, 1917.	22, Roslyn Gardens, Elizabeth Bay, N.S.W.
2/5/42.	12	Szas, Max Manfred. M.D., Vienna, 1935.	42, Magnolia Road, Gardenvale, S.A. Vic.
2/5/42.	13	Trautner, Edward Michael. M.D., Berlin, 1921.	176, Wellington Parade, East Melbourne, Vic.
10/7/42.	42	Wheeler, Elizabeth. M.D., Suedg, 1933.	164, New South Head Road, Edgely, N.S.W.
2/5/42.	8	Ziegler, Erich. M.D., Vienna, 1930.	18, Furber Road, Centennial Park, N.S.W.
2/5/42.	14	Zieher, Roman. M.D., Vienna, 1923.	35, Royal Parade, Parkville, Vic.

II. Licensed to practise medicine in all branches of medical science in an institution under supervision, in such institutions as are directed by any State Medical Co-ordination Committee appointed under the *National Security Act*:

Licence.		Name and Qualifications.	Last Recorded Address.
Date.	No.		
2/5/42.	18	Fischer, Bernard. M.D., Vienna, 1923.	262, Glen Eira Road, Elsternwick, Vic.
2/5/42.	24	Furnburg, Helene. (Now Mrs. Wechsler.) M.D., Vienna, 1938.	Mental Hospital, Claremont, W.A.
2/5/42.	19	Huppert, Isidore. M.D., Prague, 1923.	6, William Street, North Brighton, Vic.
2/5/42.	26	Kolmer, Eric. M.D., Koenigsberg, 1920.	3, Almond Grove, Cottonville, S.A.
2/5/42.	41	Kudelka, Oskar. M.D., Vienna, 1928.	Northgate Road, Northgate, Qld.
2/5/42.	20	Miraki, Mojer. M.D., Vilno, 1930.	Flat 7, 64 Westbury Street, East St. Kilda, Vic.
2/5/42.	21	Poss, Freda Mary. M.D., Basel, 1934.	12, Syverly Grove, Caulfield, Vic.
2/5/42.	22	Rosch, Martha. M.D., Vienna, 1937.	Flat 7, "Swinford", Vale Street, St. Kilda, Vic.
2/5/42.	25	Schubert, Paula. M.D., Vienna, 1926.	110, Hamilton Road, Brisbane, N.2, Qld.
2/5/42.	23	Wolff, Charlotte. M.D., Leipzig, 1937.	32, Queen's Road, Melbourne, S.C.2, Vic.

III. Licensed to practise medicine in (Approved Specialty):

Licence.		Name, Qualification and Specialty.	Last Recorded Address.
Date.	No.		
2/5/42.	31	Bettinger, Hans Frederick. M.D., Breslau, 1921. Laboratory Medicine and Medical Research.	24, Tintern Avenue, Toorak, S.E.2, Vic.
2/5/42.	27	Frank, Alexander. M.D., Vienna, 1924. Psychiatry.	175, Victoria Road, Bellevue Hill, N.S.W.
2/5/42.	32	Gottschalk, Alfred. M.D., Bonn, 1920. Laboratory Medicine and Medical Research.	253, Dandenong Road, Melbourne, C.1, Vic.
28/8/42.	50	Jakobowicz, Rachela. M.D., Berlin, 1924. Laboratory Medicine and Medical Research.	Flat 7, 129, Brighton Road, Elwood, S.3, Vic.
2/5/42.	28	Knosow, Isidor Sigmund. M.D., Vienna, 1923. Dermatology.	6, Dunroon Flats, 11, Moruben Road, Mosman, N.S.W.
2/5/42.	29	Kufler, Stephen William. M.D., Vienna, 1937. Laboratory Medicine and Medical Research.	3, Raglan Street, Mosman, N.S.W.
2/5/42.	30	Reval, Arthur. M.D., Vienna, 1928. Oto-rhino-laryngology.	49, Bayswater Road, Darlinghurst, N.S.W.
2/5/42.	33	Schuller, Arthur. M.D., Vienna, 1899. Neurology and Psychiatry.	162, Punt Road, Prahran, Vic.
2/5/42.	34	Singer, Ernest. M.D., Prague, 1923. Laboratory Medicine and Medical Research.	562, St. Kilda Road, Melbourne, Vic.

IV. Licensed to practise medicine in (Approved Specialty) in an institution under supervision in such institutions as are directed by any State Medical Co-ordination Committee appointed under the National Security Act:

Licence.		Name, Qualification and Specialty.	Last Recorded Address.
Date.	No.		
2/5/42.	35	Fink, Siegfried. M.D., Göttingen, 1922. Neurology.	Gowrie Gate, 115, Macleay Street, Potts Point, N.S.W.
2/5/42.	37	Goldberg, Hugo. M.D., Vienna, 1899. Ophthalmology.	Flat 6, 244, Albert Street, East Melbourne Vic.
28/8/42.	51	Karoly, Margaret. M.D., Budapest, 1923. Laboratory Medicine and Medical Research.	14, Ross Street, Toorak, Vic.
2/5/42.	36	Leiser, Felix. M.D., Freiburg, 1923. Diagnostic and Therapeutic Radiology.	81A, Birriga Road, Bellevue Hill, N.S.W.
28/8/42.	52	Nagler, Friedrich Oskar Paul. M.D., Frankfurt, 1936. Laboratory Medicine and Medical Research.	Terrara Road, Vermont, Vic.
2/5/42.	38	Wechsler, Zacharias. M.D., Zurich, 1931. Psychiatry.	Mental Hospital, Claremont, W.A.

V. Licensed to practise medicine in (all branches or special branch or under conditions as specified in each individual case):

In Tropical Medicine in Laboratory or Public Health Institution under supervision, appointed by any State Medical Co-ordination Committee appointed under the National Security Act.

Licence.		Name and Qualification.	Last Recorded Address.
Date.	No.		
2/5/42.	39	Ross, Serge Gregory. M.D., Kharkoff, 1921.	"The Langham", 133, Macleay Street, Potts Point, N.S.W.

At the Polyclinic of the Javanese Seamen's Home established by the Netherlands Indies Government Commission and the Royal Packet Navigation Company Limited, in Sydney, New South Wales.

Licence.		Name and Qualification.	Last Recorded Address.
Date.	No.		
10/7/42.	44	van Leent, Johan Philip. M.D., Leyden, 1937.	C/o. Royal Packet Navigation Company Ltd., 255, George Street, Sydney, N.S.W.

Post-Graduate Work.

WEEK-END COURSE AT PARRAMATTA.

The New South Wales Post-Graduate Committee in Medicine announces that, in conjunction with the Central Western Medical Association, it will hold a week-end course at Parramatta on Saturday, October 17, and Sunday, October 18, 1942. The programme is as follows:

Saturday, October 17.

At Parramatta District Hospital.

2 p.m.—Registration.

2.30 p.m.—"The Uses and Abuses of the Sulphonamides", Lieutenant Robert A. Goodwin, 118th General Hospital, United States Army.

4 p.m.—"Changing Views on Intestinal Obstruction", Lieutenant William E. Grose, 118th General Hospital, United States Army.

Sunday, October 18.

At Parramatta District Hospital.

10 a.m.—"Maternal Mortality in Obstetric Practice", Captain John Whitridge, 118th General Hospital, United States Army.

11.30 a.m.—"The Treatment of Shock", Captain Donald H. Hooker, 118th General Hospital, United States Army.

2 p.m.—"Certain New Bactericidal Agents (Not of the Sulphonamide Group)", Lieutenant John B. Treadway, 118th General Hospital, United States Army.

3 p.m.—"The Care, Feeding and Immunization of Infants", Captain William P. Stiffer, 118th General Hospital, United States Army.

As accommodation is limited, applications for the course will close on Thursday, October 15, 1942. The fee for the course will be £1 1s. and those intending to be present are requested to notify Dr. K. S. Macarthur Brown, "Brislington", 12, George Street, Parramatta, as soon as possible.

Members of the Defence Forces may attend the course without fee, but are requested to notify Dr. K. S. Macarthur Brown as soon as possible of their intention to be present.

Correspondence.

ARMY EDUCATION AND NATIONAL HEALTH INSURANCE.

SIR: While perusing a widely read illustrated magazine I noticed a series of pictures headed "Equipping Soldiers to Win the Peace". The caption to one of these pictures, which illustrate different phases of Army education, stated: "Feature films preceded by short talks are popular Army Education Service innovations in Western Australia." "Examples are Cronin's 'The Citadel' preceded by a talk on the Nationalisation of Medicine."

Those responsible for insinuating this travesty (by Dr. Cronin) of the true practice of medicine, for propagandist purposes, are certainly learning from the methods of Dr. Goebbels.

Are our Council and the Director-General of Health alive to this Army educational policy in which surely we should have a say? There are many arguments for better organization of medical practice in an age when every palatial increase in hospitalization is a monument to our ignorance in prophylaxis. The remedy, however, is not in the stereotyped canalization of our endeavours in the red tape woven by the detached administrators of a national insurance scheme.

That State nationalization does much to destroy the personal element in medical initiation is instanced by the following experience. I once had occasion to treat a relative in South Kensington, London. On calling for a prescription, the chemist said: "This type of prescribing is becoming a thing of the past and interests me because since national insurance came in, I have spent most of my time dispensing phenobarbital. Could you see your way to start a practice here, for I am so keen on seeing a better state of affairs that I built up a considerable practice for a new man, whom I introduced into the district, but he has now followed the same lazy trend?"

Regarding a constructive remedy, we do not only need merely better internal organisation, but also new doctrines and methods in regard to identifying those elements of wear and tear and deprivation which lead to the fatigue diathesis, in which acute illness and disorders of chronic deterioration and even neoplasms find their initial soil. For the incidence of these forms of ill health are twice as great in the living conditions of the East End of London compared with Mayfair. If I were asked to give a lead from clinical experience gained among that concourse of humanity unscientifically classified as "chronic", I would suggest the foundation of an institute directed to the study of trophic medicine, whose aim would be the assessing of the diverse functional and somatic departures from constitutional and systemic health in terms of vital norms, which are blank pages in current knowledge, but which often lend themselves to identification and remediation when disordered, if the correct approach is sought.

If one had to nominate an especial blind spot in our organization imagination, it is in the failure to provide access to research facilities for those practitioners who find much ground and incentive for inquiry in the realistic responsibilities of life and death and of invalidism which rest on their personal shoulders.

Yours, etc.,

FRANK THINCA.

111, Collins Street,
Melbourne, C.I.
September 18, 1942.

POST-OPERATIVE TREATMENT OF MASTOID OPERATIONS.

SIR: Dr. Buckingham's letter (THE MEDICAL JOURNAL OF AUSTRALIA, September 26, 1942) contains a number of points to which I would like to reply. In his first paragraph he says the use of the glass drainage tube for simple mastoids involves a slitting of the posterior wall of the auditory canal. This is entirely mistaken. The drainage tube is placed in the wound which is otherwise closed. It is a method far superior to the use of gauze in the wound either with or without sulphanilamide powder or paste. Actually, when sulphanilamide is put into the simple mastoid wound it may be closed completely without any sort of drainage; and certainly, without any packing.

With regard to Heath's operation, may I refer to the correspondence already published which shows, as clearly as possible, that I made no claims in favour of this operation, but condemned it in these words: "Heath's operation is not a modification of the radical operation but of the 'simple' operation. It leaves the bridge intact, so preventing the achievement of its two objects, namely, simplification of the cavity and access to the disease. Thus for chronic cases it is quite unsuitable and in acute cases it involves an unnecessary injury to the auditory canal without advantage." The epi-tympano mastoid operation was described by me in a manner that left no doubt as to what I meant.

I must entirely agree with Dr. Buckingham's last paragraph and feel sure when he reads the correspondence to which he has been replying he will find he has not adhered to his own standard.

Yours, etc.,

ERIC P. BLASHEK.

Hengrove Hall,
193, Macquarie Street,
Sydney.
September 25, 1942.

Medical Appointments.

The undermentioned appointments to the honorary medical staff of the Royal Adelaide Hospital have been made:

Sir Henry Simpson Newland, C.B.E., D.S.O., F.R.C.S., to be Temporary Honorary Surgeon, vice Dr. A. Britten Jones, on leave for military service; Sir Constantine Trent Champion de Crespigny, F.R.C.P., to be Temporary Honorary Physician, vice Dr. F. H. Beare, on leave for military service; Dr. Geoffrey Howard Barham Black, D.O.M.S., to be Temporary Honorary Ophthalmologist, vice Dr. M. Schneider, on leave for military service; Dr. Thomas Leslie McLarty, D.O.M.S., to be Temporary Honorary Assistant Ophthalmologist, vice Dr. G. H. B. Black; Dr. Edgar Jabes Brown, M.B., B.S., to be Temporary Honorary Associate Aural Surgeon, vice Dr. R. H. von der Borch, on leave for military service.

Nominations and Elections.

THE undermentioned has applied for election as a member of the Western Australian Branch of the British Medical Association:

Colwell, Alan Rudford, M.B., Ch.M., 1923 (Univ. Sydney).
First Australian General Hospital, Australian Imperial Force, Australia.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Bailey, Alan William Hale, M.B., B.S., 1941 (Univ. Sydney). 21, Canberra Avenue, North Wollstonecraft.

Diary for the Month.

- Oct. 13.—Tasmanian Branch, B.M.A.: Branch.
Oct. 13.—New South Wales Branch, B.M.A.: Executive and Finance Committee, Organization and Science Committee.
Oct. 20.—New South Wales Branch, B.M.A.: Ethics Committee.
Oct. 21.—Western Australian Branch, B.M.A.: Branch.
Oct. 22.—New South Wales Branch, B.M.A.: Clinical Meeting.
Oct. 23.—Queensland Branch, B.M.A.: Council.
Oct. 27.—New South Wales Branch, B.M.A.: Medical Politics Committee.
Oct. 29.—New South Wales Branch, B.M.A.: Branch.
Oct. 29.—South Australian Branch, B.M.A.: Branch.
Oct. 30.—Tasmanian Branch, B.M.A.: Council.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 175, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility unless such a notification is received within one month.

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